

# The Nigeria Centre for Disease Control

Ahmad Muhammad Njidda, Oyeronke Oyebanji, Joshua Obasanya, Olubunmi Ojo, Adebayo Adedeji, Nwando Mba, John Oladejo, Chikwe Ihekweazu

**To cite:** Njidda AM, Oyebanji O, Obasanya J, *et al*. The Nigeria Centre for Disease Control. *BMJ Glob Health* 2018;**3**:e000712. doi:10.1136/bmjgh-2018-000712

Received 7 January 2018  
Revised 27 February 2018  
Accepted 11 March 2018

Only a few African countries like Ethiopia and Mozambique have long standing National Public Health Institutes (NPHI). However, since the large 2014–2016 Ebola virus disease (EVD) outbreak in West Africa, many African countries have been setting up NPHI<sup>1,2</sup> to optimise the use of scarce resources to prevent, detect and respond to infectious disease threats. The Africa Union and the Economic Community of West African States (ECOWAS) have also set up regional disease control centres.<sup>3</sup>

The Nigeria Centre for Disease Control (NCDC) was conceived much earlier in 2007 as an attempt to establish an institution that can effectively mobilise its resources to respond to these outbreaks and other public health emergencies. Modelled after the US Centre for Disease Control and Prevention (CDC), Atlanta, the first formal step to establish NCDC took place in 2011 when units of Federal Ministry of Health—the Epidemiology Division, the Avian Influenza Project and its laboratories—and the Nigeria Field Epidemiology and Laboratory Training Program (NFELTP) were moved to form the nucleus of NCDC.

Detecting and responding to infectious disease outbreaks has long presented a major public health challenge in Nigeria, given its size and complexity. Several large infectious disease outbreaks have been reported in Nigeria, including the yellow fever outbreak in 1986<sup>4</sup> and 1987<sup>5</sup> that affected 9800 and 1249 people, respectively, the large meningitis outbreak in 1996 with 109 580 cases and 11 717 deaths,<sup>6</sup> cholera outbreaks in 2001 and 2004<sup>7</sup> and more recently, the meningitis outbreak in 2017.<sup>8,9</sup> In between these was the much acclaimed successful response to the outbreak of EVD in September 2014.<sup>10</sup>

Nigeria's public health challenges continue to grow—rapid population growth, increasing movement of people and destruction of infrastructure in the North East of Nigeria following the 'Boko Haram' insurgency and outbreaks from new and re-emerging pathogens. The year 2017 saw an increase in the

## Summary box

- ▶ Nigeria and several other African countries have been battling with public health challenges for decades. These challenges came to fore during the Ebola virus disease (EVD) crisis that affected many countries in the West African region, including Nigeria.
- ▶ As a result, many African countries have established their National Public Health Institutes as a focal point to prevent, detect and respond to diseases of public health importance, but currently, only 9 of the 15 countries in West Africa have a designated national public health institute.
- ▶ Before the EVD crisis, Nigeria established the Nigeria Centre for Disease Control (NCDC), which played a pivotal role in the control of the EVD outbreak in Nigeria, as well as provided support to other countries that were affected by the crisis.
- ▶ Modelled on the US Centre for Disease Control and Prevention (CDC), the NCDC has institutionalised Nigeria's capacity to respond to the increasing threats of outbreaks of infectious diseases and other public health emergencies. This is achieved through building collaborations and taking the lead in prevention, preparedness and surveillance, and also coordinating the public health laboratory networks.
- ▶ African public health institutes are currently in early stages of evolution. Building a national public health institute requires strong commitment, clarity of vision. The experience of setting up the public health institute of Nigeria can inform similar efforts in other African countries.

rate of infectious diseases like Lassa fever,<sup>11</sup> yellow fever, monkey pox, cholera and new strains/subtypes/serotypes of existing pathogens like *Neisseria meningitidis* serogroup C in Nigeria.<sup>12</sup> In addition, Nigeria has had to address emerging public health threats, such as increasing antimicrobial resistance,<sup>13</sup> and increasing incidence of non-communicable diseases<sup>14</sup> and high maternal mortality rates.<sup>15</sup>

The establishment of NCDC is indeed more justifiable now than when it was conceived in 2007. The value of the NCDC to the country became most obvious from its role in the coordination of the response to the 2014 EVD outbreak in Nigeria<sup>16,17</sup> and coordinating the



Nigeria Centre for Disease Control, Abuja, Nigeria

### Correspondence to

Dr Ahmad Muhammad Njidda;  
ahmad.njidda@ncdc.gov.ng

support that Nigeria provided to the Governments of Sierra Leone and Liberia during the EVD outbreak in those countries. This outbreak and the need for strong, country-led coordination became the basis for further growth of the NCDC. Notably, NCDC now takes the front seat in preventing and preparing for public health emergencies, and in managing the surveillance and reference laboratory architecture for Nigeria. NCDC has strong partnerships with the WHO and the US CDC, which support various activities at the Centre through grants and technical assistance to support disease surveillance, establishment of reference laboratory systems, outbreak response activities and others.

Together with the African Field Epidemiology Network, NCDC also manages the delivery of the Nigeria Field Epidemiology and Laboratory Training Programme (NFELTP). The NFELTP is a 2-year in-service training in applied epidemiology and laboratory practice within the NCDC/Federal Ministry of Health and Federal Ministry of Agriculture. The programme also offers basic epidemiology training to health workers at Local Government levels to improve surveillance and response to priority diseases.<sup>18</sup> The NFELTP is modelled after the US-CDC Epidemiology Intelligence Service and has been replicated in >80 countries around the world. In Nigeria, NFELTP has developed a pool of Field Epidemiologists and Laboratory experts with skills to gather critical information and turn it into public health action, and it is a major public health asset within Nigeria's national public health institute.<sup>19</sup>

The NCDC also has a very strong relationship with the new ECOWAS Regional Centre for Disease control which is also the regional hub for the Africa Centre for Disease Control. Other partnerships that the Centre has recently developed include with the University of Maryland, Baltimore, the Robert Koch Institute, the Global Outbreak and Response Network and Public Health England, all focusing on specific aspects of its mandate.

The NCDC has strengthened its focus on prevention and preparedness; stockpiling and prepositioning of supplies for outbreak response in the states; development of guidelines and checklists for emergency preparedness; and generally increasing its role in supporting the States. NCDC also provides guidance and support to other professionals and sub-national government public health organisations and officials.

One way that NCDC has been able to coordinate preparedness and response activities is the establishment of its Incident Coordination Centre. This serves as a location to review outbreak reports and decide on preparedness and response activities. Dashboards are available to display data from the subnational level, which provides a snapshot of disease trends in the country. The Incident Coordination Centre is also tasked with daily intelligence gathering and risk analysis of public health events to identify potential threats. It serves as an Emergency Operations Centre during outbreaks, with an incident manager leading the response, bringing together the various

pillars of outbreak response working in a command and control structure.

The NCDC is also the focal point for the implementation of the International Health Regulations (IHR), which is a global legal agreement that aims to prevent and respond to the spread of diseases and to avoid their becoming international crises. A Joint External Evaluation was carried out in June 2017 to assess Nigeria's capacity to prevent, detect and respond to threats of public health importance. Several areas of strength were highlighted as well as areas requiring an improvement in capacity.<sup>20</sup> Subsequently, a National Action Plan is being developed to strengthen areas of weakness.

The journey of NCDC shows that building NPHI takes clarity of vision, perseverance, commitment and a strong legal mandate. Achieving a legal mandate will demonstrate Nigeria's commitment to providing a strong scientific focus for ensuring the health security of Africa's most populous nation. Over the next 5 years, the NCDC's mission is to work in partnership with other arms of Government and partners to protect the health of Nigerians. This will be accomplished through integrated disease surveillance; a linked and connected public health laboratory network within the country and the sub region; and the coordination of emergency preparedness and response activities.

NPHI help to concentrate a country's resources for the prevention, detection and response to infectious diseases in a single organisation. Nigeria's experience of setting up its NCDC can inform similar efforts in other African countries.

**Twitter** @NCDCgov

**Funding** The authors have not declared a specific grant for this research from any funding agency in the public, commercial or not-for-profit sectors.

**Competing interests** None declared.

**Patient consent** Not required.

**Provenance and peer review** Not commissioned; internally peer reviewed.

**Open Access** This is an Open Access article distributed in accordance with the Creative Commons Attribution Non Commercial (CC BY-NC 4.0) license, which permits others to distribute, remix, adapt, build upon this work non-commercially, and license their derivative works on different terms, provided the original work is properly cited and the use is non-commercial. See: <http://creativecommons.org/licenses/by-nc/4.0/>

© Article author(s) (or their employer(s) unless otherwise stated in the text of the article) 2018. All rights reserved. No commercial use is permitted unless otherwise expressly granted.

## REFERENCES

1. About – NPHIL. The National Public Health Institute of Liberia is a center of excellence for better health outcomes for Liberians through a strong health system. <http://nationalphil.org/index.php/about/> (cited 25 Feb 2018).
2. Liberia IANPHI. National Public Health Institute of Liberia (NPHIL). <http://www.ianphi.org/membercountries/newprofiles/liberia.html> (cited 25 Feb 2018).
3. Nkengasong JN, Maiyegun O, Moeti M. Establishing the Africa Centres for Disease Control and Prevention: responding to Africa's health threats. *Lancet Glob Health* 2017;5:e246–7.
4. De Cock KM, Nasidi A, Enriquez J, et al. Epidemic yellow fever in eastern Nigeria, 1986. *The Lancet* 1988;331:630–3.

5. Nasidi A, Monath TP, DeCock K, *et al.* Urban yellow fever epidemic in western Nigeria, 1987. *Trans R Soc Trop Med Hyg* 1989;83:401–6.
6. Mohammed I, Nasidi A, Alkali AS, *et al.* A severe epidemic of meningococcal meningitis in Nigeria, 1996. *Trans R Soc Trop Med Hyg* 2000;94:265–70.
7. WHO. Nigeria. 2018 <http://www.who.int/csr/don/archive/country/nga/en/> (cited 25 Feb 2018).
8. WHO. Meningococcal disease – Nigeria. 2017 <http://www.who.int/csr/don/24-march-2017-meningococcal-disease-nigeria/en/> (cited 25 Feb 2018).
9. Nnadi C, Oladejo J, Yennan S, *et al.* Large Outbreak of *Neisseria meningitidis* Serogroup C - Nigeria, December 2016–June 2017. *MMWR Morb Mortal Wkly Rep* 2017;66:1352–6.
10. Otu A, Ameh S, Osifo-Dawodu E, *et al.* An account of the Ebola virus disease outbreak in Nigeria: implications and lessons learnt. *BMC Public Health* 2017;18:3.
11. WHO. Epidemic focus. 2016 <http://www.who.int/csr/disease/epidemic-focus/lassa-fever/en/> (cited 25 Feb 2018).
12. WHO. The Weekly Epidemiological Record (WER). 2017;92:609–24 <http://www.who.int/wer>.
13. Bernabé KJ, Langendorf C, Ford N, *et al.* Antimicrobial resistance in West Africa: a systematic review and meta-analysis. *Int J Antimicrob Agents* 2017;50:629–39.
14. Maiyaki MB, Garbati MA. The burden of non-communicable diseases in Nigeria; in the context of globalization. *Ann Afr Med* 2014;13:1–10.
15. Hogan MC, Foreman KJ, Naghavi M, *et al.* Maternal mortality for 181 countries, 1980–2008: a systematic analysis of progress towards Millennium Development Goal 5. *Lancet* 2010;375:1609–23.
16. Shuaib F, Gunnala R, Musa EO, *et al.* Ebola Virus Disease Outbreak – Nigeria. 2014 <https://www.cdc.gov/mmwr/preview/mmwrhtml/mm6339a5.htm> (cited 25 Feb 2018).
17. Oleribe OO, Crossey MM, Taylor-Robinson SD. Nigerian response to the 2014 Ebola viral disease outbreak: lessons and cautions. *Pan Afr Med J* 2015;22(Suppl 1):13.
18. Nigeria Centre for Disease Control. The Nigeria Field Epidemiology and Laboratory Training Program (NFELTP). <http://ncdc.gov.ng/training/nfeltp> (cited 27 Feb 2018).
19. Nguku P, Oyemakinde A, Sabitu K, *et al.* Training and service in Public Health, Nigeria Field Epidemiology and Laboratory Training, 2008–2014. *Pan African Medical Journal* 2014;18.
20. World Health Organization (WHO) Geneva. Joint external evaluation of IHR Core Capacities of the Federal Republic of Nigeria, Executive summary June 12 - 20, 2017. 2017:3–5 <http://apps.who.int/iris/bitstream/10665/258724/1/WHO-WHE-CPI-SUM-2017.46-eng.pdf?ua=1>