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ABSTRACT

Africa grapples with the world's most serious public health crisis, but this article shows that there are public health solutions that work in the African setting. When the Ebola virus disease outbreak was announced in Nigeria in July 2014, some public health specialists worried that an apocalyptic outbreak would sweep through the vast slums of Lagos. The words "Ebola" and "Lagos" in the same sentence were viewed as a dangerous combination, due to the large population of Lagos and the inefficient health care system in the city. Contrary to this view, the outbreak of Ebola virus disease was successfully contained in Nigeria. This article focuses on the factors that were responsible for this success. It examines strategies developed within Nigeria that help to ensure the successful containment of the disease. The paper identifies lessons that can be learnt by other countries from the Nigerian experience.

L'Afrique est confrontée à la plus grave crise de santé publique du monde, mais cet article montre qu'il existe des solutions de santé publique qui fonctionnent dans le contexte africain. Lorsque la flambée de la maladie du virus Ebola a été annoncée au Nigéria en juillet 2014, certains spécialistes en santé publique craignaient qu'une flambée apocalyptique ne ravage les vastes bidonvilles de Lagos. Les mots « Ebola » et « Lagos » dans la même phrase étaient perçus comme une combinaison dangereuse, en raison de l'importante population de Lagos et du système de santé inefficace de la ville. Contrairement à cette manière de voir, la flambée de la maladie du virus Ebola a été efficacement contenue au Nigéria. Cet article porte sur les facteurs responsables de ce succès. Il examine des stratégies mises au point au sein du Nigéria qui contribuent à garantir une maîtrise réussie de la maladie. Cet article met en évidence les enseignements que peuvent tirer d'autres pays de l'expérience nigériane.

Actualmente, el continente africano lucha contra la crisis de salud más seria del mundo; a pesar de ello, el presente artículo confirma que existen soluciones de salud pública aplicables al contexto africano a partir de las cuales se pueden obtener resultados exitosos. Cuando en julio de 2014 se anunció que en Nigeria había brotado la enfermedad por el virus del Ébola, algunos especialistas de salud pública externaron su preocupación por el hecho de que un brote apocalíptico se extendiera en los inmensos barrios pobres de Lagos. Así, las palabras Ébola y Lagos contenidas en una sola frase podían provocar agudo nerviosismo, debido a la numerosa población humana residente en Lagos y al ineficiente sistema de salud existente en la ciudad. Sin embargo, en Nigeria pudo contenerse el brote de Ébola. El presente artículo examina los factores que explican este éxito, analizando las estrategias implementadas en el país para contener exitosamente la enfermedad e identificando los aprendizajes que pueden ser aprovechados por otras naciones a partir de esta experiencia.

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Introduction

The replacement of the Organisation of African Unity (OAU) with the African Union (AU) is significant because it underscores the fact that the multi-dimensional struggles against problems associated with colonialism and neo-colonialism could be brought to an end through the efforts of Africans. It also signifies a resolve to ensure that Africa emerges as its own leader in the twenty-first century, by finding African solutions to all the challenges confronting African countries. The begin-ning of the notion of "African solutions for African problems" can be associated with the pan-African ideals of self-esteem, self-sufficiency, independence, and African inventiveness and creative imagination. The concept has been used in recent times in relation to the management of conflict and other security issues affecting the continent. The problems of Africa have continued to attract concern in policy-making cycles and the academic world, within and outside the continent. In spite of the challenges of neo-colonialism, most African leaders have preferred African solutions to African problems, even though the region still continues to rely on external investment and markets (Amusan and Oyewole 2014). In this regard, African solutions to African problems has gained regional prominence.

One aspect of African problems which require African solutions that has not been given adequate attention by scholars is health care and disease control. This is important because African societies face a health crisis. Proffering African solutions to African health care challenges should be given paramount attention because the continent is prone to outbreaks of diseases naturally transmitted between vertebrate animals and humans (zoonotic diseases). These diseases pose serious health security threats to African countries, with frequent outbreaks across borders (Tomori 2014). Rural and urban populations live with, are disabled by, or die (prematurely) from communicable diseases such as malaria, tuberculosis (TB), and HIV/AIDS as well as a growing epidemic of chronic non-com-municable diseases, in particular diabetes, heart diseases, and cancers (Unwin et al. 2001; WHO 2003, 2005). This double burden of disease is compounded by a nutrition transition typified by the co-exist-ence of under-nutrition (extreme hunger), malnutrition, and over-nutrition (obesity) across the region (WHO/FAO 2003; WHO 2005; Aikins and Marks 2007). In most cases of serious health crisis African states rely on foreign assistance. This has been the case in most West African countries since the out-break of the Ebola virus disease. The case of Nigeria seems different. What lessons can be learnt from the Nigeria approach, especially given the poor state of health services delivery in the country? Before examining how Nigeria effectively handled the outbreak of the Ebola virus disease, let us consider the condition of public health care in Nigeria. This will help enhance understanding of why Nigeria's success story with the Ebola virus disease outbreak is remarkable.

The condition of Nigeria's public health care system

Nigeria's public health care system reflects the federal character of the country which is made up of 36 states (and a Federal Capital Territory), further sub-divided into 774 local government areas. This means that the federal, states, and local governments have jurisdiction in the provision of health care services; the provision of health care services in Nigeria is a concurrent function of the three tiers of government. Private health care institutions also exist to complement the role of the government (Umukoro 2012). Health facilities in the private sector are not generally accessible to low income earners, and private hospitals mainly provide services for higher income households. Poor health out-comes in public health care institutions are attributed to the lack of appropriate targeting strategies for reaching the poor, low levels of public funding, and poor implementation of the government's public spending (Osafo-Kwako and Apampa 2009). In 1979, Nigeria had 562 general hospitals, com-plemented by 16 maternity and/or paediatric hospitals, 11 armed forces hospitals, six teaching hos-pitals, and three prison hospitals. In all they accounted for about 44,600 hospital beds. In addition, general health centres were estimated to total slightly fewer than 600; general clinics (2,740); mater-nity homes (930); and maternal health centres (1,240). The establishments were distributed among

federal, state, and local governments, while some are privately owned. In 1985 there were 84 federal health establishments (accounting for 13% of hospital beds); 3,023 owned by state governments (47% of hospital beds); 6,331 owned by local governments (11% of hospital beds); and 1,436 privately owned medical organisations (providing 14% of hospital beds). Nigeria's health care delivery system consists of a network of primary, secondary, and tertiary facilities. By 2010, primary health care was largely provided through almost 4,000 health centres and dispensaries located in different parts of the country. With regards to secondary care, there were about 700 health care institutions and 1,670 maternity homes; tertiary care was handled by 12 university teaching hospitals with about 6,500 beds (El Rufai 2011).

Several reports indicate that Nigeria has a very poor health care system. For example, Nigeria was ranked 187 out of 191 countries for health service performance in the World Health Report 2000. This indicates that many Nigerians suffer from inadequate health care. Improper health care affects the physical fitness of individuals to engage in meaningful economic activities that makes living poss-ible. The poor performance of health institutions has been attributed mainly to government's atti-tude towards health care services delivery. Budgetary allocations to health annually have been persistently below 5%, except for in 1998–99 and 2002–03 when they were at or just above this level. Infant mortality rates have increased from 85 per 1,000 live births in 1982, 87 in 1990, 93 in 1991, to 100 in 2003, according to the Nigeria Demographic and Health Survey (2003). In 2007, the Federal Ministry of Health reported 110 deaths per 1,000 live births. In terms of the human development index, Nigeria is ranked 158th of the 159 countries surveyed in 2005 (CIA 2009). Using selected world development indicators, the life expectancy at birth in 2006 for males and females in Nigeria was 46 and 47 years, respectively. Between 2000 and 2007, 27.2% of children under five were malnourished. This is alarming compared to 3.7% in Brazil for the same period, another emerging economy. Worse still, the mortality rate for children under five years old is given as 191 per 1,000 births in 2006. This compares outrageously poorly to comparative figures of 69 per 1000 births in South Africa, 108 per 1,000 births in Togo, 120 per 1,000 births in Ghana, and 149 per 1,000 births in Cameroon (World Bank 2008). This means that there is a generally high level of poverty in the country (Oshewolo 2010; Umukoro 2012).

The Ebola epidemic in Africa: an overview

Is the Ebola virus disease an African problem? Although the effects of the disease could be felt globally, it can be described as an African problem because of its origin and rapid spread in Africa. Ebola virus disease (EVD) is a severe, often fatal illness, with a mortality rate of up to 90%. The illness affects humans and non-human primates (monkeys, gorillas, and chimpanzees). Ebola first appeared in 1976 in two concurrent outbreaks, one in a community close to the Ebola River in the Democratic Republic of Congo, and the second in an isolated place in Sudan. The origin of the virus is unknown, but fruit bats (Pteropodidae) are considered the likely host of the Ebola virus, based on available evidence. In the present epidemic in West Africa, most of the cases in humans have occurred as a result of human-to-human transmission. Infection arises from direct contact through injured skin or mucous membranes with the blood, or other bodily fluids or secretions (stool, urine, saliva, semen) of infected people. One can also be infected if broken skin or mucous membranes of a healthy person come into contact with environments that have become contaminated with an Ebola patient's infectious fluids, such as stained clothing, bedding, or used needles (World Health Organisation 2014).

Several cases of EVD transmissions were identified between 1994 and 1996 in countries such as Côte d'Ivoire, Democratic Republic of Congo, and Gabon. EVD epidemic in West Africa became an international public health crisis in 2014, and a threat to international peace and security. That is why the UN Secretary General, Ban Ki-moon, stated on 18 September 2014 that "the gravity and scale of the situation now requires a level of international action unprecedented for an emergency" (Roache et al. 2014).

Origin of Ebola virus disease in Nigeria

Nigeria recorded the first case of EVD when a Liberian-American diplomat, Patrick Sawyer, collapsed at the Lagos international airport on 20 July 2014. He was already ill with the disease in Liberia, under treatment there, and was told not to travel out of the country. He defied these instructions and tra-velled to Nigeria by air. At the time of Sawyer's arrival, airport staff were unprepared and the govern-ment had not set up any hospital isolation unit, so he was able to infect several people, including health workers in the hospital where he was taken. Lagos, the commercial hub of Africa's most popu-lous nation, largest economy, and leading energy producer, would have been an ideal springboard for Ebola to spread across the country if not for the innovative strategies used by the government and health workers.

The beginning of efforts to handle the EVD problem in Nigeria can be traced to the former head of operations at First Consultants Hospital, Lagos, Dr Adadevoh. Dr Adadevoh was applauded for quickly detecting that Sawyer, who was admitted to the hospital for five days before his death, was not candid when he denied that he was infected with the Ebola virus disease. After Sawyer tested nega-tive for malaria and other diseases, the doctor ordered that his blood be tested for Ebola, for which he tested positive. After the laboratory test, the Lagos State Government was informed so that appro-priate actions could be taken (Thisday Newspaper 2014).

Strategies for the management of Ebola crisis in Nigeria

Nigeria was not prepared for the outbreak of EVD, but the swift response from the federal and state governments helped to contain the problem. The success of such innovative strategies made the Pre-sident of Nigeria, Goodluck Jonathan, urge Nigerians to "replicate the unity of purpose and all-hands-on-deck approach adopted against Ebola in other areas of national life". He further stated that "Nigeria's globally-acclaimed success against Ebola is a testimony to what Nigerians can achieve if they set aside their differences and work together."

The following strategies accounted for the success recorded in eradicating EVD from Nigeria.

1. Public policy/financial measures

The Federal Government of Nigeria, in a swift reaction to the Ebola outbreak, matched public policy with the provision of financial resources for the management of the health problem. After the declaration of the Ebola outbreak and a national health emergency by the President of Nigeria, 1.9 billion Naira (about US$10,810,810) was approved for the control and containment of the disease. The sum of 200 million Naira (about US$1,081,081) was also approved by the Federal Government to support the Lagos State Government. Medical workers and other health professionals are urged to regard the declaration of a national emergency as a patriotic call to duty and service (News Agency of Nigeria 2014).

2. Use of buckets for hand washing

Following the Ebola outbreak the Federal Ministry of Health in Nigeria urged Nigerians to ensure that they continued to properly wash their hands with soap and running water; as well as improved personal hygiene, this was a means of keeping themselves safe from the virus that may cause the disease. The use of a bucket with a tap for regular hand washing was introduced as an African strategy since there is no running water in most places. The use of buckets makes it possible for running water to be available in public places such as schools, even when there is no regular source of water supply such as a bore hole. The Federal Government of Nigeria launched a National Emergency Hand Washing Campaign in a bid to prevent the further spread of EVD. The campaign was implemented by the Min-istry of Water Resources in partnership with the National Task Group on Sanitation (Ugwuanyi 2014).

3. Government response to the influence of social media

Social media played dual roles following the outbreak. First, it helped to create awareness about the disease and possible preventive measures. Second, it was used by some people to spread rumour and false information that could cause other health problems. For example, there was a rumour about a cure to Ebola through the use of salt and warm water. An elaborate social media prank urged Niger-ians to drink excessive amounts of salt water to avoid catching the Ebola virus. The hoax spread like wildfire for several days in August. Two people died and at least 20 people were hospitalised as a result (Vanguard Newspaper 2014). In order to curtail the dangerous effects of misleading infor-mation via social media, the Federal and State governments in Nigeria embarked on various forms of public enlightenment campaigns. Vigorous public health education by the government helped to check the negative influence of social media.

4. Surveillance and contact tracing

Contact tracing is an essential aspect of the overall strategy for controlling an occurrence of EVD. It refers to the identification and monitoring of persons who interacted with an infected person. Contact tracing is a vital part of epidemiologic inquiry and effective surveillance (Federal Government of Nigeria 2014). Interruption of the spread of Ebola in the community is based on the early detection and quick quarantine of new cases. During an EVD outbreak with recognised person-to-person transmission, new cases are more likely to occur among contacts. That is why it is critical that all potential contacts of suspected, probable, and confirmed Ebola cases are systemically identified and put under surveillance for 21 days (the maximum incubation period of Ebola virus) from the last day of contact. Immediate removal of potentially infectious contacts with signs and symptoms of the disease to selected treat-ment centres or to the nearest healthcare facility prevents high-risk exposure during home-based care and customary burial procedures. Contact tracing is therefore one of the most effective outbreak containment measures and must be implemented prudently (World Health Organisation 2014).

Following the outbreak of Ebola in Nigeria, the government's first priority was to locate all potential contacts. A team of more than 150 designated "contact tracers" tracked down each of the individuals. With all of those potentially exposed to the virus pinpointed, workers conducted an astounding 18,500 face-to-face visits to check for fever and other Ebola-related symptoms in each of these contacts. Getting the contact to meet with tracers also required a good deal of effort to remove social stigma around the disease. Any individual showing symptoms was swiftly moved to an isolation ward for further investigation. Once an Ebola case was confirmed, patients were transferred to a special Ebola virus treatment centre. Even those contacts that tested negative but showed signs of Ebola were held – separately from Ebola patients – until all symptoms were resolved. As cases were established the Emergency Operations Center tracked down additional contacts and disinfected potentially infectious areas. All the primary, secondary, and tertiary contacts of the impor-ter of EVD to Nigeria (Patrick Sawyer) were traced and have undertaken various levels of clinical and epidemiological care (eReporter 2014). The federal government of Nigeria also encouraged monitor-ing at all land borders, airports, and seaports.

5. Intergovernmental cooperation and unity of purpose

Cooperation by the various levels of government (federal, state, and local) was encouraged by the President of Nigeria as a strategy for combating the Ebola crisis. Goodluck Jonathan directed the Federal Ministry of Health to work in partnership with the State Ministries of Health, the National Centre for Disease Control (NCDC), the National Emergency Management Agency (NEMA), and other related agencies to ensure that all relevant steps were taken to contain the spread of the disease. The unity of purpose and collaboration across national, state, local governments, individuals and groups, as well as of international agencies, was unprecedented.

6. Prompt response

Quick and forceful response on the part of the government and other stakeholders aided the suc-cessful control of the Ebola epidemic in Nigeria. Quick response manifested in areas such as prompt and comprehensive tracing of all potential contacts, effective monitoring of all of these contacts and speedy isolation of possible infectious contacts. The swift battle was won not only with cautious dis-infecting, port-of-entry screening, and rapid quarantine, but also with the 18,500 in-person follow-up visits to find any new cases of Ebola among a total of 989 identified contacts. That is why the World Health Organisation (WHO) (2014) declared the feat “a piece of world-class epidemiological detective work”. Cases were identified promptly and put under rigorous surveillance so that if they were to become sick, they wouldn’t transmit the disease to others. It was Nigeria’s active and quick public health response that really stopped the spread of the disease.

7. Use of social mobilisers

In addition to contact tracing and quick isolation, social mobilisers campaigned in areas around the households of Ebola contacts. This made it possible for another 26,000 households to be reached with health information. The effective provision of health information to the broader public was a challenge, but contributed to the containment of the disease. Social mobilisers also helped people have confidence in the government so as to comply with government directives.

8. Training

Doctors in Nigeria were given specialised training locally on how to handle the Ebola problem. This included guidance on how to use protective clothing approved by WHO. Training was also given to other healthcare workers and non-medical personnel on key facts about Ebola.

Public health lessons for other African countries

The first case of Ebola in Nigeria was reported on 20 July 2014. The patient was a passenger from Liberia who landed at Lagos airport. The Nigerian government quickly responded to the exposure of people to the virus. This made it possible for the disease to be successfully contained in Nigeria. Behind this success story lays skilled public leaders and institutions that carried out their respon-sibilities promptly and diligently. After the diagnosis was made, Nigeria used a coordinated approach that involved making over 18,000 visits to about 898 people to check their temperatures. The 898 people were linked to one initial infected patient. These included 351 primary and second-ary contacts, as well as 547 tertiary contacts. What lessons can be learnt from Nigeria’s success story?

1. Contact tracing and quarantine

The spread of Ebola virus can be ensured by tracing all those who have come in contact with affected persons. When they are identified, they should be isolated in order to prevent them trans-mitting it to other people. Treatment should be administered quickly if symptoms were detected. Nigeria successfully used this strategy to prevent the Ebola disease from spreading.

2. Early detection

Someone infected by EVD usually will infect others unless preventive measures are taken (Frieden 2014). It is therefore important for victims to be detected as quickly as possible so that they can be isolated and treated. In Nigeria the virus was passed from Sawyer through the hospital that treated

him. In addition, a patient who fled to Port Harcourt in search of better medical services also spread the virus to a doctor there. Effective early detection surveillance in Lagos and Port Harcourt helped to curtail further spread of the disease.

3. Strong leadership is essential

WHO (2014) credited Nigeria with beating Ebola because of strong leaders who made the effort a top national priority. In Nigeria the country's self-interest was clear. Its oil industry makes up half the national economy. If the country were to be shut down by Ebola, it would be devastated. The most critical factor is leadership and engagement from the head of state and the Minister of Health. In the United States, critics have faulted the US government for initially expressing confidence in its safety protocols and pro-cedures for health care workers, then suddenly revising them after nurses became infected. The new measures include hands-on training, complete skin coverage for those dealing with Ebola patients, and enlisting observers to watch workers as they put on and remove protective gear (Akukwe 2014).

4. Effective leadership

Cooperation among various levels of government is very important. Close working relationships between federal and local authorities in Nigeria contributed to the solution to the Ebola outbreak. It is therefore important that no level of government work in isolation in an attempt to fight the Ebola virus disease. In some cases local authorities may be more effective in reaching people at the grassroots level.

5. Transparency and accountability

The public need to be informed in an open and truthful manner about the situation and what the government is doing. In Nigeria the government released status updates and responded to emerging circumstances.

6. Effective use of social media

Since social media can easily be used to spread misleading information about the nature and treatment of the Ebola disease, the government must be prepared to respond in a timely manner to correct any false information. For example, when the rumour spread that salt is a cure to Ebola and that people should bath with it, the government responded very quickly with an aggressive public enlightenment campaign.

7. Functional health systems remain the backbone of robust response to disease outbreaks

Compared with other West African countries, Nigeria has a relatively better health system. Nigeria took advantage of existing health systems to anchor an effective response against Ebola. Guinea, Liberia, and Sierra Leone, without such an advantage, had markedly different experiences and out-comes. It is important that a country strengthen its health system to be capable of dealing with complex emergencies that could arise at any time.

Conclusion

Africa contends with the world's most challenging public health problems, but this article shows that there are public health solutions that work in the African setting. Beneficial outcomes can be extended to other African countries in need, if governments build on lessons from successful activities, and seek better strategies for harmonising efforts with international partners. In Nigeria, the

response of relevant health authorities to the introduction of Ebola into the country was not only rapid, but also holistic in accordance with international public health standards. When the government became aware of the first case, existing national disease surveillance, detection, and control systems were activated. All those who were in contact with the index case and other contacts with suspected clinical symptoms were not only traced, but also put under close surveillance for 21 days. Nigerian health workers in Lagos and Port Harcourt actively observed and followed up with each reported or alleged contact. Workers in the Nigeria health sector made more than 18,000 face-to-face visits to check upon nearly 900 contacts during the epidemic. Senegal also did the same and monitored more than 70 contacts until the end of the 21-day observation period. Other measures for preventing the spread of the disease were adopted, including the use of hand sanitising liquids and other anti-infective solutions. The government also encouraged citizens to report anyone suspected to have symptoms of EVD. Additional precautionary public health measures taken by the government were strict seaport and airport health screening protocols for all individuals coming into and exiting the country. Each port of entry began monitoring the temperature of pas-sengers, and individuals with high temperatures were not only prevented from immediate travel, but also referred to an immediate clinical follow up. Those suspected of active infection were isolated and provided with round-the-clock supportive clinical care, the internationally accepted gold stan-dard. Clinical personnel received supplementary training on infectious disease control. Health per-sonnel had access to protective clothing. Health facilities with Ebola or suspected cases were not only thoroughly sanitised but also meticulously followed waste disposal procedures. Additionally, laboratory testing and confirmation of diagnosis were carried out according to WHO standards (Akukwe 2014).

In spite of Nigeria's achievement in containing the Ebola virus disease, much could still be done to improve the overall public health care system in Nigeria. Diseases that afflict many in Nigeria include malaria, typhoid fever, measles, pneumonia, chicken pox, guinea worm, and cancer. Specific aspects of the health care sector in Nigeria that require urgent attention include medical equipment and the number of medical personnel in public hospitals. In 2009, the Nigerian national health conference identified lack of synchronisation of efforts, fragmentation of services, inadequate resources, includ-ing medicine and supplies, insufficient and deteriorating infrastructure, inequity in the distribution of resources, and access to care as major challenges in the health sector (Menizibeya 2011). Health workers have regularly protested and gone on strike because of these problems. Since protests aggravate the problem of health care delivery in Nigeria, lessons learnt from the handling of the Ebola disease epidemic should be used to transform the health sector in Nigeria. This also applies to other African countries.

The following strategies can help improve the performance of the public health care system. First, government expenditure on health care services delivery should be increased. This will make it possible for medical facilities to be improved in public hospitals, and health workers ade-quately remunerated. The current public expenditure on health care services delivery is grossly below international standards. Second, a social welfare system should be introduced to assist poor families who cannot pay for medical bills in public hospitals. This is very important because the out-of-pocket financing of health care expenses leads to problems such as reduction of expen-diture on food, debt burden, preventing a sick person from seeking medical care in public hospitals, and encouraging the use of traditional medicine. Third, efforts should be made to fight corruption in the health sector. Corruption contributes to problems such as a reduction in resources required to improve the performance of the health sector, lowering the overall quality of health care services (Umukoro 2012).

Disclosure statement

No potential conflict of interest was reported by the author.

Notes on contributor

Nathaniel Umukoro is a Lecturer in the Department of Political Science, Delta State University, Nigeria, and a fellow of the Next Generation Social Sciences in Africa programme of the Social Science Research Council, New York. He is also an alumnus of Brown International Advanced Research Institute (BIARI), Brown University, USA.

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