

Commentary

Recurring Outbreaks of Lassa Fever in Nigeria: Understanding the Root Causes and Strategies for the Future

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Abstract

Lassa fever is a severe public health problem in Nigeria with far-reaching political, social, cultural, and religious ramifications. Thus, a further understanding of the disease is critical. Despite attempts to end the viral epidemic, the illness has persisted, leading to several major outbreaks in decades. Additionally, the country's epidemic in 2019–2020 set a new global record for the number of Lassa fever cases. This year, 244 cases and 37 deaths had been reported as of January 2023. To identify gaps and provide recommendations for the complete eradication of Lassa fever in the country. This paper investigates the underlying causes of the continuous outbreaks of the illness in Nigeria and the measures to prevent it. The frequent outbreaks of Lassa fever in Nigeria have been linked to several factors, including inadequate waste management, poor sanitation, restricted access to healthcare, and abject poverty. The reoccurring outbreaks are also attributed to a lack of political will, funding, poor coordination and communication, and low public awareness of the illness and its prevention. To effectively stop outbreaks of Lassa fever in Nigeria, the government and partners must continuously put into practice tried-and-true prevention measures such as improved surveillance to detect outbreaks earlier, increased funding and resources to support effective control measures, better primary healthcare facilities and training for healthcare professionals, heightened community engagement and education to raise awareness, and more effective vector control methods to reduce rodent populations, while looking for innovative approaches and dealing with the underlying social and economic problems contributing to the viral persistence.

Keywords: Lassa fever, hemorrhagic fever, LHF, Nigeria, viral infection

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1. Introduction

Lassa fever is a viral hemorrhagic illness that is caused by the Lassa fever virus, an enveloped, single-stranded RNA virus that was named after the city of Lassa in Borno State, Nigeria. The virus's coding mechanism is in the form of ambisense, and its RNA genome is bi-segmented. The envelope glycoprotein complex (GP), which appears as trimeric spikes on the surface of the virus, is a key target for the development of antibody-based vaccinations and treatments [1]. It was initially identified in 1969 during an outbreak in the city of Jos in Plateau State, Nigeria. Certain West African nations, particularly Nigeria, Liberia, Sierra Leone, and Guinea, have endemic zoonotic diseases [2, 3]. Humans are vulnerable to Lassa fever through contact with the urine or feces of infected rodents, which are common in parts of West Africa. The virus is shed in their bodily fluids and can be transmitted to humans through direct contact with rodents or their excreta. People can also become infected with Lassa fever through contact with objects contaminated with the virus, such as household items or food [4]. Based on the disease's generalized symptoms and clinical presentation, which include fever, vomiting, exhaustion, abdominal discomfort, sore throat, chest pain, and myalgia, identifying the disease's onset is frequently challenging. It could develop into major side effects including encephalitis, breathing issues, hemorrhage, neurological issues, hearing loss, and death can occur often due to multiple organ failure, shock, and bleeding. It is estimated that between 300,000 and 500,000 cases of Lassa fever occur each year in West Africa, with 5,000 to 10,000 deaths reported annually [5].

In Nigeria, there is a persistent outbreak of Lassa fever that usually lasts from December to June each year. For example, with more than 1189 confirmed cases and 244 fatalities, the year 2020 saw one of the deadliest epidemics in recent memory [6]. The actual numbers are likely to be much higher, as many cases go unreported or are misdiagnosed [6]. In recent years, Lassa fever-related high mortality and has been reported in Edo, Ondo, Ebonyi, Plateau, Bauchi, and Taraba states [6]. However, the outbreak can occur in any state and has indeed been documented in all the states in the past [7]. Nigeria is now experiencing a crisis due to the highly contagious and fatal viral hemorrhagic sickness. According to the status report from January 22, 2023, there were 244 confirmed cases and 37 fatalities overall [8]. Public health authorities and members of the general public are both deeply concerned about the current outbreak in Nigeria, with the Nigeria Center for Disease Control and Prevention (NCDC) activating the emergency operations center for Lassa fever recently to strengthen the response to increasing cases.

Despite these efforts, Lassa fever is still a significant issue in Nigeria, demonstrating the need for more research and funding for managing and preventing the illness. In this analysis, we delve into the recurrent outbreaks of Lassa fever in Nigeria, the ongoing spread of the virus, the containment efforts that have been put in place, and the challenges that are hindering progress. The aim is to gather the information that will assist in developing targeted infection-control and prevention strategies to combat this persistent public health threat.

1.1. Recurring Lassa fever outbreaks in Nigeria

Lassa fever has regularly afflicted Nigeria since it was first discovered there in 1969 [9]. Nigeria has had epidemics of the disease in several of its states, most frequently between December and June [6, 10]. Concerns regarding how Lassa fever could impact the country's public health have been raised due to the rising number of cases reported over time [8]. In Nigeria in 2000, there was a big outbreak of Lassa fever with several hundred documented cases and several dozen fatalities [7]. Over the years, several outbreaks were reported, with some years reporting more cases than others. For instance, 2012 was a year that also witnessed a marked increase in reported cases, with a total of 1723 and 219 suspected and confirmed cases, respectively [11].

Epidemiological outbreaks of Lassa fever remained in Nigeria during the following years, with varying degrees of severity. The sickness developed a large pandemic in 2016, with over 918 suspected and 209 confirmed cases. Even though there were fewer cases in 2017, the sickness nevertheless posed a major danger to the country's general health [11]. In the year 2018, there was a significant increase in reported cases, with over 600 confirmed cases and over 191 fatalities [6]. More than 800 confirmed cases and 170 fatalities occurred in 2019, marking the start of yet another major outbreak [6, 7]. Over 1189 confirmed cases and 244 fatalities were reported in the nation in 2020, a considerable rise from the previous year, with fewer cases recorded in 2021 [6].

However, Nigeria saw another significant Lassa outbreak in the first quarter of 2022, with over 900 confirmed cases and nearly 200 fatalities [12]. Health officials reported high infections and fatalities in several places where the epidemic was particularly severe [8]. In response, the Nigerian government and international health organizations intensified their efforts to stop the virus's spread. These efforts included raising public awareness, enhancing infection control in healthcare institutions, and implementing better surveillance systems. Currently, Lassa fever outbreaks are still a problem in Nigeria [8]. Public health experts continue to be concerned about the situation, and

there is a constant need for efficient solutions to stop the virus's spread and safeguard communities from its effects.

1.2. Factors fueling recurring Lassa outbreaks in Nigeria

As shown in Figure 1, numerous variables are thought to be responsible for the recurrence of Lassa fever epidemics in Nigeria, including poor sanitation, poor waste management, and a lack of access to efficient primary care, among others [8, 9]. People who come into contact with infected food, household items, or rodent urine or excrement may get the virus. The danger of contracting the virus is increased by lax hygiene and sanitation standards. The frequent outbreaks of Lassa fever are also due to overcrowding; more the number of people in a smaller area, the higher the chances of contact with the diseased mice or contaminated surfaces [8]. Inadequate waste management techniques can also foster the reproduction and spread of rats, which are the main hosts for pests. Nigeria is a country with a high population of people living in rural areas in close association with animals, including rodents, providing a breeding ground for Lassa to spread.



Figure 1: Factors fuelling recurring Lassa fever outbreaks in Nigeria.

Limited access to healthcare services, particularly in rural areas, also contributes to the recurring outbreaks of Lassa fever. This makes it difficult for patients to receive prompt and effective treatment, which can result in more severe outcomes and higher mortality rates [13]. Furthermore, the healthcare infrastructure in Nigeria is often ill-equipped to respond to outbreaks of infectious diseases like Lassa fever [14]. There are often shortages of personal protective equipment, diagnostic tests, and antiviral treatments, which limit the ability of healthcare workers to respond to outbreaks effectively.

Other factors include a lack of political will and insufficient finance. Ineffective communication and coordination between many groups and people involved in disease management activities, which together can lead to inefficiencies and gaps in the response. For example, if the government and other decision-makers lack the political will to handle Lassa fever, response efforts can only receive limited resources and attention [9, 14]. Thus, the disease may continue to spread if organizations cannot conduct efficient monitoring, research, and control operations due to a lack of financing.

The frequent outbreaks of Lassa fever in Nigeria can also be linked to a lack of public awareness of the illness and its methods of prevention. Without a thorough grasp of the risks posed by the virus and the steps to be taken to prevent its transmission, people may engage in actions that increase their vulnerability to infection.

1.3. Efforts by governments and partners to contain the ongoing outbreak

To address the ongoing outbreak of Lassa fever in Nigeria, the Nigeria Center for Disease Control (NCDC) has adopted several actions. To better coordinate the response, the National Emergency Operations Center's alert level 2 has been activated, along with the state public health operation centers in the impacted states [8]. Rapid reaction teams have been sent to several states, and case management and infection prevention and control (IPC) protocols have been made available to the general public and healthcare professionals. The distribution of medical response supplies to treatment facilities is underway, as are enhanced surveillance measures and the clinical management of confirmed patients. The seven national Lassa fever laboratories operate efficiently to process samples promptly. The Federal Ministry of Environment is also implementing an environmental response campaign to control the spread of the virus through vector and environmental control [8]. The NCDC is also increasing its community engagement efforts through various communication channels.

International organizations such as the World Health Organization (WHO) and the Center for Disease Control and Prevention (CDC) have also been involved in efforts to address the outbreak. These organizations have provided technical assistance, medical supplies, and funding to help strengthen Nigeria's health system and respond to the crisis. However, these interventions have also been deployed in the past and have not succeeded in eliminating recurring outbreaks of Lassa in the country. Therefore, more strict measures are necessary.

1.4. Recommendations

Recurrent outbreaks of Lassa fever in Nigeria persist despite ongoing efforts to control its spread. A comprehensive approach, including enhanced surveillance, improved funding and resources, better healthcare facilities and skills, increased community engagement and education, and efficient vector control measures, are necessary to eradicate the disease. The government must continuously implement proven strategies, while seeking new solutions and addressing underlying social and economic issues such as poverty and poor sanitation.

The control of vector-borne diseases requires a multipronged approach, including the establishment of a community-based surveillance system, the use of technology for rapid illness detection, and the development of a coordinated response strategy. Enhancing disease control efforts also involves the investigation and creation of novel medications and vaccines, collaboration with international organizations, and the implementation of strategies such as an early warning system, door-to-door education campaigns, community involvement in disease surveillance, and telemedicine systems. The government needs to collaborate with all stakeholders to address poverty and improve living conditions, as these factors are closely linked to human exposure to disease vectors.

The government must keep implanting these tried-and-true strategies for preventing the spread of contagious illnesses like Lassa fever in a sustained manner while simultaneously looking for solutions. Importantly, addressing the underlying social and economic problems, such as poverty and inadequate sanitation, that contribute to the spread of the disease should be prioritized.

2. Conclusion

The Lassa virus issue in Nigeria has severe ramifications for regional and national economic growth and public health. Aside from endangering human health, illness has a detrimental effect on commerce, tourism, and agriculture, which fuels the rise of social inequality and poverty. All parties, including the government, foreign organizations, and the corporate sector, must collaborate to develop a thorough and coordinated response to Nigeria's complicated and ongoing Lassa fever problem. This includes improving surveillance to detect outbreaks earlier, allocating more funds and resources to support control measures, enhancing primary healthcare facilities and providing training to healthcare professionals, increasing community engagement and education to raise

awareness about the disease, and implementing more effective vector control methods to reduce rodent populations. Additionally, innovative approaches should be explored to address the underlying social and economic issues that contribute to the persistence of the virus. The success of these initiatives would depend on everyone's capacity to cooperate in order to safeguard Nigeria's population's health and well-being.

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Competing Interests

None.

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