

Strengthening Public Health Communication Strategies for Recurrent Lassa fever Outbreaks in Nigeria

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ABSTRACT

Lassa fever remains a persistent public health challenge in Nigeria, with recurrent outbreaks annually that typically peak during the early months of the dry season. Despite ongoing surveillance and response activities, the country continues to record high numbers of infections and deaths. These recurring outbreaks highlight the need to examine the role of communication in prevention, particularly how behaviour-focused public health messaging can help reduce transmission before outbreaks escalate. This study analyses three years of national Lassa fever surveillance data from 2023 to 2025. The analysis explores how epidemiological trends can inform effective public health communication strategies. Surveillance reports from the Nigeria Centre for Disease Control and Prevention were reviewed to examine patterns in confirmed cases and deaths, as well as seasonal trends. The findings show a clear seasonal pattern, with transmission increasing during the dry season and declining during the rainy months. Despite this predictability, communication efforts often intensify only after case numbers begin to rise. The analysis highlights gaps in message timing, audience targeting, and the translation of surveillance insights into practical guidance for communities. The study demonstrates that routine surveillance data can provide early signals that should guide the timing and targeting of risk communication messages. The study recommends proactive communication campaigns that begin before peak transmission periods and target high-burden areas. Such campaigns can strengthen risk awareness, promote preventive practices, and encourage timely health care-seeking.

Keywords: Lassa fever; risk communication; outbreak prevention; public health communication

INTRODUCTION

Lassa fever remains a major public health concern in Nigeria. The disease occurs every year, usually during the dry season. This seasonal pattern makes outbreaks largely predictable and highlights persistent challenges in preventing recurrent transmission (Nigeria Centre for Disease Control and Prevention 2024). Lassa fever also remains endemic in several West African countries and continues to pose a significant regional public health challenge. Lassa fever is an acute viral haemorrhagic illness caused by the Lassa virus. It is primarily transmitted to humans through contact with food or household items contaminated with urine or droppings of infected *Mastomys* rodents. Human-to-human transmission can also occur, particularly in healthcare settings where infection prevention and control measures are inadequate (World Health Organisation, 2023).

Nigeria has experienced recurrent outbreaks of Lassa fever for several decades, with seasonal increases typically occurring between November and April. This pattern is influenced by increased human–rodent interaction during the dry season when *Mastomys* rodents move closer to households in search of food and shelter. National surveillance reports from the Nigeria Centre for Disease Control and Prevention (NCDC) consistently reflect this trend. Data compiled from NCDC weekly situation reports by Niyi (2025) show that more than one thousand confirmed cases were recorded annually between 2023 and 2025. A substantial proportion of these infections occurred during the early dry-season months, reinforcing the stability of the seasonal transmission pattern in Nigeria.

Public health communication plays a crucial role in preventing and controlling infectious disease outbreaks. Effective communication helps individuals understand their risk level, adopt preventive behaviours, and seek

medical care promptly when symptoms appear. It also helps build public trust, reduce misinformation, and support coordinated responses during health emergencies (Covello & Sandman, 2001; World Health Organisation, 2022). During Lassa fever outbreaks, communication is particularly important because early symptoms may be mild or nonspecific, which can delay healthcare seeking or lead individuals to self-treat at home. Surveillance reports indicate that high fatality rates are often associated with delayed presentation and limited awareness of early symptoms (Nigeria Centre for Disease Control and Prevention, 2024).

Effective risk communication principles emphasise the importance of timely, transparent, and audience-centred messaging during health emergencies (Covello & Sandman, 2001). Behavioural models such as the Health Belief Model suggest that individuals are more likely to adopt preventive actions when they perceive a clear risk and receive appropriate cues to act (Rosenstock, 1974). When communication strategies are aligned with epidemiological trends, public health agencies can issue earlier warnings and encourage preventive behaviours before outbreaks intensify.

The NCDC publishes regular Lassa fever situation reports that include epidemiological data on confirmed cases, deaths, case fatality rates, and affected states. While these reports provide valuable surveillance information, their insights are not always systematically integrated into communication planning. As a result, public risk messages are often intensified only after case numbers begin to rise, limiting opportunities for early prevention.

This study analyses national Lassa fever surveillance data from 2023 to 2025 to identify epidemiological patterns that can inform more effective public health communication strategies. The study examines seasonal trends and transmission patterns to understand how surveillance data can guide preventive communication. It explores how such insights can shape the timing, targeting, and framing of preventive messaging. By aligning communication strategies with epidemiological patterns, public health authorities can improve the effectiveness of outbreak prevention efforts. Strengthening this integration can support earlier risk awareness and more timely dissemination of health information. This approach can support earlier risk awareness and strengthen preventive communication efforts in areas affected by recurrent Lassa fever outbreaks.

METHODOLOGY

This study adopted a descriptive-analytical approach to examine epidemiological patterns in Lassa fever outbreaks in Nigeria and to assess how these trends can inform public health communication strategies. The analysis focused on national surveillance data covering a three-year period from 2023 to 2025.

Data were obtained from Lassa fever situation reports published by the Nigeria Centre for Disease Control and Prevention. These reports provide weekly epidemiological updates on confirmed cases, deaths, case fatality ratios, and affected states. For analysis, the surveillance figures were organised into a consolidated time-series dataset derived from the reports. The dataset, compiled by Niyi (2025), standardised weekly case counts and mortality figures to enable consistent comparison of trends across the 2023–2025 period.

Descriptive trend analysis was used to examine confirmed cases, deaths, seasonal variation, geographic distribution of infections, and case fatality trends. Annual totals, seasonal fluctuations in transmission, and the geographic concentration of cases across Nigerian states were also analysed.

This study relied exclusively on publicly available secondary data obtained from official surveillance reports, national briefings, global health agencies, and peer-reviewed literature. No individual-level data was used. Ethical approval was therefore not required. A limitation of this study is that it relied on secondary surveillance data. Such data may underestimate the true burden of Lassa fever due to underreporting.

RESULTS

Analysis of national surveillance data from 2023 to 2025 shows that Lassa fever continues to impose a substantial disease burden in Nigeria. According to NCDC surveillance reports, 1,271 confirmed cases and 210 deaths were recorded in 2023. In 2024, confirmed cases increased slightly to 1,311 while deaths declined marginally to 207. In 2025, confirmed cases declined to 1,131 while deaths remained high at 210. Although annual case counts

fluctuated slightly, the overall burden remained consistently high. The case fatality rate across the three years ranged from approximately 16 percent to 19 percent.

Table 1: Annual Lassa Fever Cases and Deaths in Nigeria (2023–2025)

Year	Confirmed Cases	Deaths
2023	1,271	210
2024	1,311	207
2025	1,131	210

Source: Nigeria Centre for Disease Control and Prevention surveillance reports (2023–2025).

Surveillance reports also indicate that young adults constitute a substantial proportion of confirmed cases, with individuals aged 21–30 years frequently appearing among the most affected groups in national reports.

The surveillance data reveal clear geographic and seasonal variations in Lassa fever transmission across Nigeria. Cases are unevenly distributed across states, with Edo, Ondo, Ebonyi, and Bauchi consistently accounting for a substantial share of national infections.

Seasonal analysis shows a strong recurring pattern in which cases increase during the dry season and decline during the rainy season. In 2023, approximately 1,015 confirmed cases occurred during the dry season compared with 192 cases during the wet season. A similar pattern was observed in 2024, when dry-season cases reached 1,029 compared with 190 cases during the wet season. In 2025, dry-season cases totalled 962, while the wet season recorded 238.

Across all three years, the dry season accounted for four to six times more cases than the wet season, demonstrating the strong seasonal nature of Lassa fever transmission in Nigeria.

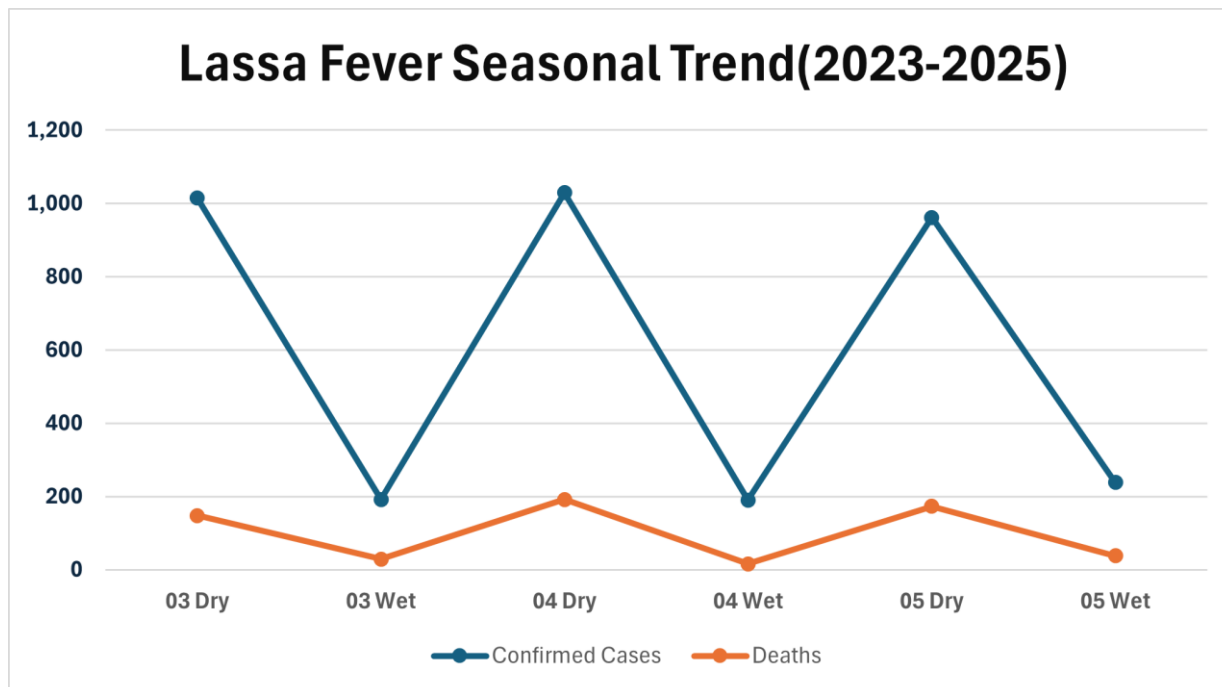


Figure 1. Seasonal Distribution of Lassa Fever Cases in Nigeria (2023–2025)

Source: Nigeria Centre for Disease Control and Prevention surveillance reports (2023–2025).

DISCUSSION

Lassa fever remains a major public health challenge in Nigeria. Under the Integrated Disease Surveillance and Response (IDSR) framework, the disease is classified as epidemic-prone. Suspected cases must therefore be

reported immediately. Health facilities across the country report cases through this system, enabling early detection and coordinated response. Over the past decade, laboratory capacity has expanded significantly. Polymerase chain reaction (PCR) diagnostic laboratories have been established across several geopolitical zones. These developments have strengthened case detection and improved national surveillance capacity.

The findings of this study show that outbreaks follow a consistent seasonal pattern. Cases rise during the dry season and decline during the rainy months. This pattern has remained largely stable over the past three years. Confirmed cases remained above 1,100 annually between 2023 and 2025, while deaths also remained high. These trends indicate that Lassa fever continues to impose a substantial burden on Nigeria's health system despite ongoing surveillance and response efforts. Similar seasonal transmission patterns have been reported in previous studies across Nigeria and other parts of West Africa. This study extends existing research by demonstrating how surveillance trends can inform the timing and targeting of public health communication strategies.

The findings also reveal gaps in how epidemiological data are used to guide communication strategies. Surveillance reports consistently identify hotspot states such as Ondo, Edo, Bauchi, and Taraba. These states account for a large share of confirmed cases. However, communication campaigns are often broad and national in scope rather than focused on communities with the highest levels of risk. Risk communication guidance emphasises localised and community-centred messaging that reflects local environments and behavioural risk factors (Pan American Health Organisation, 2024).

Another challenge concerns how disease severity is communicated. Surveillance data show persistently high case fatality rates across the study period. Yet communication campaigns do not always emphasise the seriousness of the disease strongly enough to encourage early healthcare seeking. Behavioural models such as the Health Belief Model highlight perceived susceptibility and perceived severity as key drivers of preventive action (Boslaugh, 2024). When these elements are not clearly communicated, communities may underestimate the risks associated with the disease.

In settings where outbreaks follow predictable seasonal patterns, communication strategies can play a critical role in prevention. Communication should not be treated only as a supporting component of outbreak response. It should function as a central element of disease prevention. Effective communication can influence behaviours linked to Lassa fever transmission. These behaviours include unsafe food storage, open drying of grains, poor environmental sanitation, and delayed healthcare seeking. Addressing these behaviours can reduce exposure to rodent reservoirs and promote earlier treatment.

When communication messages are delivered early and consistently, communities are more likely to adopt protective behaviours. The recurring outbreaks of Lassa fever demonstrate that biomedical interventions alone are insufficient. A proactive communication system that uses surveillance data to guide message timing and targeting can strengthen community awareness and encourage preventive practices. This approach can ultimately reduce illness and mortality associated with Lassa fever.

Proposed Public Health Communication Strategies

Surveillance data from 2023 to 2025 show that Lassa fever outbreaks in Nigeria follow predictable seasonal and geographic patterns. These patterns provide a strong basis for designing targeted and proactive public health communication strategies. Effective communication can reduce exposure to infection, encourage early care-seeking, and promote preventive behaviour in high-burden communities. To achieve this, communication strategies should be informed by surveillance data and supported by behavioural science.

A. Pre-Season Proactive Messaging

Surveillance reports consistently show that Lassa fever cases increase at the start of each year, particularly during epidemiological weeks 1-12. This seasonal rise reflects increased exposure to infected rodents during the dry season (World Health Organisation, 2023; Nigeria Centre for Disease Control and Prevention, 2024). Because this pattern is predictable, communication efforts should begin before the peak transmission period.

Public health messaging should therefore start in October when rodent activity around homes and food storage areas often increases. Messages should focus on rodent control, safe food storage, environmental sanitation, and early symptom recognition. Early communication enables communities to understand risks and take protective action before transmission intensifies.

These messages should be delivered through widely accessible channels such as radio broadcasts, community meetings, faith-based gatherings, and local markets. Digital communication platforms can also expand reach. Social media, SMS alerts, and WhatsApp groups can rapidly disseminate timely updates and preventive guidance, particularly in urban and semi-urban communities where mobile phone use is widespread.

B. Community-Based Behaviour Change Communication

Many drivers of Lassa fever transmission are linked to everyday household practices, including open-air food drying, poor waste management, and rodent activity around homes. Infection often occurs when individuals come into contact with food or household items contaminated by rodent urine or droppings (World Health Organisation, 2023).

Community-based behaviour change communication can help reduce these risks by promoting practical preventive actions. Recommended practices include storing grains in rodent-proof containers, sealing openings in kitchens and storerooms, and maintaining cleaner household environments that discourage rodent activity.

Communication strategies should also address delayed healthcare seeking. Early treatment significantly improves survival in Lassa fever cases (World Health Organisation, 2023; Nigeria Centre for Disease Control and Prevention, 2024). Public messages should therefore emphasise the importance of seeking medical care promptly when symptoms such as fever, weakness, or vomiting appear.

Behavioural nudges may further support sustained behaviour change. Reminder messages delivered via mobile phones, radio announcements, or community alerts can encourage individuals to consistently adopt preventive practices. Community pledges and public commitments to improve sanitation and food storage practices may also reinforce protective behaviours. These interventions can be delivered through community health workers, local leaders, and women's associations who already play important roles in community health education.

C. Strengthening Trust and Risk Perception

Trust strongly influences how communities respond to health information. Risk communication is most effective when the public trusts the information source and believes their concerns are understood (Pan American Health Organisation, 2024). Communication efforts should therefore be transparent, consistent, and empathetic.

Risk perception also plays a significant role in behaviour change. Although Lassa fever has a high mortality rate, many people underestimate its seriousness. Communication strategies should explain the severity of the illness in simple and relatable language that communities can easily understand.

Trusted community figures such as traditional leaders, religious leaders, teachers, and market leaders can serve as communication intermediaries. These individuals often have a strong influence in shaping community attitudes and behaviours and can help reinforce preventive messages within local communities.

D. Integrating Surveillance Data into Communication Planning

A key gap identified in the surveillance analysis is the limited integration of surveillance findings into communication planning. Surveillance systems generate valuable information on case distribution, seasonal patterns, and high-burden locations. However, these data are often used primarily for epidemiological monitoring rather than for guiding communication strategies.

Hotspot states such as Ondo, Edo, Bauchi, and Taraba consistently report a substantial proportion of national cases in Nigeria's surveillance reports (Nigeria Centre for Disease Control and Prevention, 2024). These areas should therefore receive intensified communication efforts before case numbers begin to rise.

Public health agencies can also develop short communication briefs that translate surveillance trends into simple and actionable messages. For example:

“Lassa fever cases are rising in your area. Keep food covered and seek care early.”

Such alerts can be distributed through radio announcements, SMS messages, WhatsApp groups, and community leaders.

Effective integration of surveillance data into communication planning also requires closer collaboration between epidemiologists and communication specialists. Regular joint analysis sessions can ensure that public messages reflect emerging trends and can be adjusted quickly when transmission increases.

CONCLUSION

The analysis shows that Lassa fever outbreaks in Nigeria follow predictable seasonal and geographic patterns that can serve as early signals for preventive communication. Integrating surveillance data with risk communication strategies would support earlier warnings, targeted messaging in high-burden areas, and stronger adoption of preventive behaviours.

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