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Review Article

The Role of Ethnography in Outbreak Response: Lessons from Lassa Fever in Nigeria

Ekpenyong Mercy Enoabbassy[1]*, Jean Paul Yassa Guilavogui[2], Nimnan Famak Tyem[3] and Umukoro Angel Ivie[4]

[1]Department of Public Health, National Open University Nigeria, Nigeria

[2]Medical Department, Public Health for All Institute, Conakry, Guinea

[3]London School of Hygiene and Tropical Medicine, University of London, Central London, United Kingdom

[4]APIN, Public Health Initiative, Plateau State, Nigeria

***Corresponding Author:** Ekpenyong Mercy Enoabbassy, Department of Public Health, National Open University Nigeria, Nigeria.

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Abstract

This review explores ethnography as a valuable tool in public health, using Lassa fever in Nigeria as a case example. It draws on reported experiences from three affected communities—Owo, Irrua, and Abakaliki—to highlight how beliefs, behaviors, and local practices shape people's response to the disease. The paper reflects on documented accounts involving daily life, informal conversations with residents, and community-level interactions.

Many people interpreted Lassa fever not just as a medical condition, but as a consequence of spiritual forces or broken taboos. This led some to delay hospital visits in favor of traditional healers or prayer houses, while others hid their illness to avoid judgment or social isolation. These behaviors often contributed to late treatment and the continued spread of the virus.

The findings emphasize that public health responses must go beyond clinical care. Understanding local beliefs, building trust, and involving community leaders are essential steps toward effective disease control. By listening to community narratives and integrating cultural perspectives into health strategies, outbreak management can become more inclusive, respectful, and impactful.

Keywords: Lassa Fever; Ethnography; Nigeria; Public Health; Cultural Beliefs; Disease Response; Community Trust

Introduction

Ethnography is a way of learning about people by spending time with them, observing how they live, listening to their stories, and gaining an understanding of their everyday experiences. It allows researchers to see the world through the eyes of the community—what they believe, how they behave, and why they make certain choices, especially in the face of health challenges or disease outbreaks.

Over the years, ethnography has emerged as a powerful tool in public health, offering unique insights into the social, cultural, and behavioral dimensions of health and illness. It enables researchers

to interpret how people engage with health systems, how they make sense of symptoms, and how they navigate treatment decisions in real-world settings. In the context of infectious disease outbreaks, ethnographic research can uncover underlying causes of delayed care, misinformation, and practices that may hinder effective response and prevention [1,2].

In Nigeria, where recurring outbreaks such as Lassa fever continue to claim lives, biomedical responses often fall short of fully addressing the root causes of health behaviors. These outbreaks are further complicated by social and cultural factors such as reliance on traditional healing, fear of stigma, mistrust of public health institutions, and poor communication strategies [3]. In rural areas like Owo and Irrua, health messages are sometimes misunderstood due to language barriers, low literacy, or spiritual interpretations of illness [4]. As a result, many individuals delay hospital visits, turn to prayer houses or traditional healers, or keep their symptoms hidden—leading to late treatment and further spread of the disease.

There is an urgent need to understand the local realities that shape how people respond to public health crises. Ethnography, with its emphasis on context, relationships, and lived experience, provides a way to bridge the gap between top-down health interventions and the everyday experiences of the communities they target [5]. This review draws on reflections from three Lassa-endemic regions—Owo, Irrua, and Abakaliki—to explore how ethnographic approaches can strengthen community engagement and improve outbreak response in Nigeria.

Objectives

This review aims to explore the role of ethnographic methods in understanding and addressing public health challenges associated with Lassa fever in Nigeria. Specifically, it seeks to:

- Examine how socio-cultural beliefs and practices influence the transmission, perception, and management of Lassa fever in endemic Nigerian communities.
- Assess the usefulness of ethnographic tools—such as participant observation, informal conversations, and immersion—in informing more effective outbreak response strategies.
- Highlight case examples where ethnographic insights have contributed to improved disease control, particularly in rural or underserved regions of Nigeria.
- Contribute to the growing body of knowledge advocating for the integration of qualitative and anthropological approaches into epidemiology, health communication, and public health planning.

Ethnographic approaches in public health practice

Globally, ethnography has shaped responses to major health challenges such as HIV/AIDS, Ebola, tuberculosis, and vaccine resistance. For example, during the West African Ebola outbreak, anthropologists worked with local communities to redesign burial practices in ways that honored cultural traditions while promoting safety. This culturally sensitive approach helped build trust and improve cooperation with public health teams in countries like Sierra Leone and Liberia [6,7]. Ethnographic studies have also illuminated how stigma and social exclusion affect access to care for diseases like HIV and TB [8]. It was found that vaccine acceptance is closely tied to trust, social networks, and local narratives, rather than simply access to information [9]. Also maternal health-seeking behavior across sub-Saharan Africa is shaped by gender roles, family structures, and cultural expectations—insights that would have remained hidden without community-level engagement [5].

In Nigeria, ethnography has offered critical insights into public health challenges, particularly in regions where misinformation and mistrust are common. One well-known case is the resistance to polio vaccination in Northern Nigeria, where political suspicion and religious concerns led to vaccine boycotts. It was illustrated how ethnographic work with local leaders helped bridge the communication gap and shift public perception [10]. The same approach has proven useful in addressing infectious diseases such as Lassa fever, which is endemic in parts of Edo, Ondo, and Ebonyi States. In these regions, cultural practices and environmental factors play a significant role in disease transmission. For instance, it has been documented how unsanitary housing and poor food storage practices create conditions that attract rodents, which are the primary carriers of the Lassa virus [11] and the role of local beliefs in shaping health responses has also been emphasized, noting that many people interpret illness as a spiritual problem or punishment, delaying hospital visits and undermining outbreak

control efforts [12]. These examples show how ethnographic insights are not just theoretical—they are practical tools for improving public health messaging, designing culturally grounded interventions, and building long-term community trust.

Ethnography and health systems in Lassa fever response

Ethnographic research not only sheds light on individual behaviors during outbreaks but also exposes weaknesses in health systems, especially in underserved regions. In many low-resource settings, healthcare workers are stretched thin, often facing burnout due to limited staffing and overwhelming workloads. Patient-provider interactions in these settings are shaped by broader structural issues—such as poverty, inequality, and a history of underinvestment in public health infrastructure [13]. Ethnographic studies help make these invisible systems visible by capturing the voices of both health workers and community members. They allow for grounded, practical recommendations that move beyond clinical checklists to address the lived realities of those navigating and delivering care.

Through participatory approaches, ethnographers work directly with communities to co-create health communication strategies that are culturally meaningful and locally acceptable. Such collaborations help foster trust and improve the chances of successful intervention [14]. This participatory style of ethnography has been especially useful in addressing vaccine hesitancy and improving maternal health access across many African countries. When applied to Lassa fever response, these methods allow outbreak containment measures to resonate with the cultural fabric of communities, increasing the likelihood of compliance and cooperation [15].

In the case of Lassa fever, ethnography has revealed how behaviors often labeled as "risky" are in fact embedded in survival strategies. It was observed that practices such as rodent hunting, bush burning, and certain food storage habits are not merely cultural but stem from economic necessity in many rural Nigerian communities [16,17]. These insights challenge the narrative that poor health outcomes are simply due to ignorance or resistance. Instead, they call for interventions that address underlying socio-economic conditions alongside medical education.

The influence of traditional belief systems has also been well-documented in Lassa fever literature. For example, it was found that symptoms like fever, convulsions, and bleeding were frequently interpreted as signs of spiritual affliction rather than infectious disease [18]. This led to significant delays in seeking medical care, which in turn contributed to higher mortality rates. However, by identifying key community influencers such as traditional healers and religious leaders, ethnographic work opened new avenues for promoting timely healthcare-seeking behavior.

Further evidence from Plateau State supports the critical role of ethnographic methods in outbreak management- Fear, mistrust, and misinformation led caregivers to avoid health facilities during outbreaks [19]. In some cases, communities believed hospitals were spreading the disease or using patients for harmful experiments. The lack of clear, transparent communication from health authorities compounded this fear. Ethnographic engagement with these communities highlighted the urgent need for risk communication strategies that were not only accurate, but also empathetic, inclusive, and rooted in mutual respect.

Similarly, A focus group-based research was conducted in Taraba and Bauchi States and found that many people struggled to distinguish between Lassa fever and malaria, leading to underreporting and misdiagnosis [20]. Their findings demonstrated that community-led education, designed with local language and metaphors, was far more effective than generic public health announcements. This once again reinforced the value of ethnography in bridging the gap between policy and practice, especially in contexts where disease symptoms and health system access overlap with longstanding social and cultural dynamics.

Ethnographic methods and tools for outbreak settings

Ethnography, a cornerstone of qualitative public health research, seeks to understand human behavior within the context of everyday life. Through immersion, prolonged engagement, and layered observation, ethnographic methods reveal how beliefs, practices, and environmental conditions shape the transmission and management of diseases. When applied in epidemic-prone regions such as Nigeria, these tools offer invaluable insights that often elude quantitative surveys or epidemiological models.

One core method is participant observation, where researchers actively engage with communities while documenting behaviors and environmental conditions. In Lassa fever-endemic towns like

Owo in Ondo State, observers noted food left uncovered in baskets, refuse dumped near living spaces, and rodent-human interaction patterns that significantly contributed to viral transmission [21]. Inside health facilities such as Owo General Hospital, researchers witnessed caregivers offering herbal remedies alongside biomedical prescriptions—a dual health-seeking approach rarely admitted during interviews, due to fear of stigma or reprimand [22]. These firsthand observations provided a more complete understanding of health behaviors than interviews alone could reveal.

In-depth interviews (IDIs) add another dimension, allowing researchers to capture detailed personal accounts. Interviews with Lassa survivors, traditional birth attendants, and community elders in Edo and Ebonyi states revealed that the illness was frequently perceived as a spiritual problem or a consequence of breaking cultural taboos [23]. One woman in Ekpoma recounted how her symptoms were initially treated at home using herbal concoctions. Only after two weeks—when her condition worsened—was she taken to Irrua Specialist Hospital. Her story, and others like it, underscore the delays and complications that arise when spiritual interpretations take precedence over early biomedical care.

Focus group discussions (FGDs) provide a valuable space to explore collective beliefs, rumors, and risk perceptions. Market women in Owo town expressed suspicion toward government fumigation teams, whom they believed were spreading disease instead of preventing it [24]. Meanwhile, FGDs with youth in Plateau State revealed a resigned attitude toward rodents: many saw infestations as inevitable due to poverty and poor housing, rendering health messaging about prevention largely ineffective. These findings shaped future outreach strategies, using peer facilitators and community analogies that felt more relatable.

Transect walks and spatial mapping offer insights into the physical and environmental factors that influence outbreaks. By walking through affected communities with local leaders and health officers, researchers in Owo identified clusters of households disposing waste behind their homes—ideal breeding grounds for *Mastomys natalensis*, the Lassa virus reservoir. In Taraba State, spatial mapping illustrated that some villages were up to 15 kilometers from the nearest health center, explaining delays in care-seeking and overreliance on traditional or faith-based healers [25]. These maps informed calls for mobile testing units and decentralized storage systems for rodent-proof containers.

Ethnographic studies increasingly incorporate visual methods, such as photography and video, to complement written data. In a 2021 study from Edo State, researchers documented how suspected Lassa victims were buried without medical confirmation—out of fear, misinformation, or cultural obligation [26]. These visual materials were later adapted for use in community sensitization campaigns, showing both the risks of traditional burial practices and the benefits of early detection and proper treatment.

Throughout the research process, reflexive journaling and field notes allow ethnographers to monitor their own biases and interactions. A researcher in Ondo reported that participants hesitated to share information freely, fearing punitive repercussions from health authorities. Recognizing this tension, the researcher adjusted their methods—moving away from rigid interviews and toward informal, trust-building conversations [27]. Reflexivity ensures that research remains ethically grounded and culturally sensitive, especially in emotionally charged outbreak contexts.

Ethnographic research in outbreak settings also demands strict ethical standards. Informed consent, confidentiality, and cultural respect are non-negotiable. For studies involving stigmatized conditions like Lassa fever, ethical precautions must go beyond institutional protocols to address community-level fears and vulnerabilities. In Owo, for example, researchers first obtained "communal consent" through engagement with traditional leaders. These leaders helped facilitate participant trust and ensured that the research was understood, accepted, and that findings were eventually shared back in accessible formats.

By blending immersive observation with interviews, visuals, and spatial data, ethnographic methods provide a holistic, human-centered understanding of outbreak dynamics. They illuminate the gaps between biomedical models and lived realities—gaps that, when unaddressed, can compromise public health response. As this paper shows, applying these methods in Lassa-endemic communities is not just a methodological choice, but a necessity for designing inclusive and effective health interventions.

Ethnographic case studies in Lassa fever-endemic regions of Nigeria

Ethnographic fieldwork in Nigeria has illuminated the often-overlooked dynamics shaping how communities perceive and respond to Lassa fever. While epidemiological data tracks infections

and mortality, only ethnography can fully explain why people delay care, mistrust health facilities, or rely on traditional healers. Drawing from three endemic regions—Owo (Ondo State), Irrua (Edo State), and Abakaliki (Ebonyi State)—this section highlights how embedded fieldwork has revealed key insights critical to understanding outbreak patterns and improving response strategies.

In Owo, a region historically burdened by high Lassa fever fatality rates, 2023 witnessed another surge in cases. The Federal Medical Centre (FMC) Owo reported increased admissions, many of which occurred only after significant delays in care-seeking. Ethnographers embedded in local hospitals and surrounding communities used participant observation and in-depth interviews to uncover multiple layers of community behavior and belief that influenced outbreak outcomes. One consistent theme was the spiritual framing of illness—many residents attributed symptoms to ancestral curses or broken taboos rather than viral causes [28]. Caregivers often first turned to herbal mixtures like agbo or visited prayer houses, leading to late hospital presentation and increased risk of transmission [29].

Environmental conditions also played a major role in transmission. Rodents were commonly observed in kitchens, where food was stored in open baskets, and household refuse was disposed of nearby—factors that made *Mastomys natalensis* infestation almost inevitable [30]. Ethnographers also documented mistrust of isolation protocols, with some patients fleeing facilities due to rumors about organ harvesting and experimental treatments. These findings fed directly into a community dialogue initiative that employed local storytellers and market leaders to dispel myths and improve trust in biomedical care [31].

In Irrua, home to Nigeria's leading Lassa fever treatment center, the Irrua Specialist Teaching Hospital (ISTH), ethnographic work focused on survivor narratives and hybrid healing systems. Interviews revealed that over half of survivors had used traditional or spiritual remedies either before or alongside biomedical treatment. One woman described using dogonyaro leaves mixed with alligator pepper, believing it would protect her spiritually before seeking hospital care [31]. These practices reflect the deeply rooted syncretism of health systems in Nigeria, where biomedical and indigenous healing coexist.

Ethnographers also documented the social cost of survival. Survivors were frequently stigmatized—one female shopkeeper was ostracized by her community, forcing her to relocate. Others reported customers refusing to touch goods or money handled by them. Caregivers, often women or close relatives, were observed sleeping on hospital floors without protective gear, pointing to serious infection prevention gaps in non-specialist health settings [28]. Ethnographic reporting helped drive advocacy for survivor reintegration support and expanded caregiver protection protocols, now implemented in parts of Edo State.

In Abakaliki, repeated Lassa outbreaks since 2005 have made the region a key site for ethnographic inquiry. At the Alex Ekwueme Federal University Teaching Hospital (AE-FUTHA), researchers partnered with local informants to conduct transect walks, FGDs, and key informant interviews in peri-urban communities. One striking theme was the spread of rumors about medical practices—some residents believed that hospitals "kill patients for money" or that injections administered to poor patients were lethal [32]. These perceptions were shaped by poor communication from health workers and the absence of visible survivor testimony, reinforcing fear and avoidance of care.

Ethnographic tools also exposed gendered risks. Women bore the brunt of exposure due to their domestic roles—handling food, cleaning bodily fluids, and caring for the sick—often without gloves or protective equipment [28]. In one instance, a traditional burial ritual in Ezilo involved washing the body of a Lassa fever victim and using the water for cleansing, leading to multiple infections and deaths within the same family [30]. These insights led to collaborative efforts with religious leaders to restructure burial rites and community-led training on home hygiene and rodent-proof storage practices.

Across these case studies, a common thread emerges: ethnographic methods reveal the social fabric in which disease spreads and interventions succeed or fail. Whether addressing spiritual interpretations of illness, social stigma, environmental exposure, or systemic mistrust, the role of embedded, culturally attuned research is clear. These insights must be integrated into Nigeria's broader public health strategy if Lassa fever control is to move beyond emergency response and toward sustainable prevention.

Challenges and limitations of ethnographic approaches in outbreak settings

Ethnographic research has proven essential for understanding the human dimensions of health crises. Yet, during outbreak situations such as Lassa fever epidemics, its application is often constrained by ethical, practical, and methodological limitations. These challenges are heightened by the urgency, fear, and volatility that typically characterize epidemic environments [33].

Ethical challenges

The ethical complexity of ethnography is magnified during outbreaks. Researchers often work with populations who are vulnerable, stigmatized, or traumatized, and must prioritize care, confidentiality, and cultural sensitivity throughout the research process.

- **Informed Consent**: Gaining truly informed consent can be difficult in communities where biomedical concepts are poorly understood or where fear and misinformation prevail. Some participants may not fully comprehend the risks of disclosure, particularly in close-knit communities where disease status can easily become public [34]. Additionally, gatekeeping by community leaders may either facilitate or inhibit access, depending on local hierarchies [35].
- **Confidentiality and Anonymity**: Maintaining anonymity is especially challenging in outbreak contexts, where research activities themselves may draw attention to affected individuals. In small rural communities, merely speaking with a researcher may lead others to assume someone is infected, inadvertently increasing stigma [36].
- **Vulnerability of Participants**: Survivors, suspected cases, and caregivers often experience social ostracism, anxiety, and trauma. Researchers must tread carefully to avoid retraumatization, and ethical oversight must ensure that the emotional well-being of participants is safeguarded [37].

Practical constraints

Outbreak ethnography requires adaptability, but practical field conditions may impede the depth and continuity typically associated with this methodology.

- **Time Constraints**: The episodic nature of outbreaks means that ethnographic immersion is often compressed into short windows, limiting researchers' ability to develop deep rapport or track evolving behaviors over time [38]. Researchers may be expected to deliver quick insights for emergency response teams, which challenges the traditionally long-term nature of ethnographic inquiry [39].
- **Access and Safety Issues**: High-risk transmission zones may be closed off to non-essential personnel, including researchers. Access often depends on the approval of health officials or traditional authorities, and researchers must weigh data collection needs against their own safety [40]. Insecurity, especially in politically unstable regions, can further restrict movement and participation [41].
- **Community Trust**: Mistrust of outsiders is common in epidemic zones, particularly when communities associate public health measures with past harm or neglect. Researchers may be viewed as part of a broader "outsider" agenda, complicating efforts to gain honest and open feedback [42,43].

Data collection and interpretation limitations

The outbreak setting poses unique methodological challenges to maintaining data quality and objectivity in ethnographic studies.

- **Volatility of Outbreaks**: As infection rates rise and fall, community attitudes toward disease may shift rapidly. Ethnographers may find that themes that were relevant at the start of fieldwork become outdated within days. The evolving nature of epidemics can make it difficult to maintain a consistent research focus or adequately follow up with participants [44,45].
- **Language Barriers**: In multilingual countries like Nigeria, researchers may face difficulty understanding regional dialects or local terminologies associated with illness and healing. While interpreters can help, they may also introduce translation bias or filter cultural meanings [46]. Subtle nuances—such as tone, metaphor, or non-verbal cues—may be missed without fluency in the local language [36].

- **Subjectivity in Interpretation**: Ethnographic data is inherently interpretive. The researcher's own worldview, positionality, or cultural biases may influence how community behaviors are analyzed. Triangulation—using multiple data sources and stakeholder perspectives—is one strategy used to enhance validity and minimize bias [35,47].

Addressing the Gaps: Strengths of ethnography in public health research

Despite the significant challenges of applying ethnographic methods in outbreak contexts, the value of ethnography remains undeniable—especially in resource-constrained settings like Nigeria. Its ability to humanize data, contextualize behavior, and shape culturally grounded public health responses makes it indispensable. Below are key strengths that ethnography offers in understanding and managing disease outbreaks such as Lassa fever.

- **Contextualizing Disease Dynamics:** Ethnography excels in embedding public health crises within the everyday realities of affected populations. Unlike epidemiological data, which focuses on the what, ethnography reveals the why. In Owo, Ondo State, researchers uncovered how spiritual interpretations of Lassa fever symptoms delayed treatment-seeking behavior. This contextual insight helped explain the continued high mortality despite increased disease awareness [28].
- **Informing Culturally Responsive Interventions:** Ethnographic findings often directly shape the design of culturally sensitive health interventions. In Irrua, Edo State, the strategic inclusion of traditional healers in public health outreach helped improve trust in biomedical care. Rather than displacing indigenous healing systems, the initiative leveraged them to bridge gaps in communication, resulting in earlier patient referrals and better compliance [31].
- **Generating Holistic, Intersectional Data:** Ethnography integrates insights from various dimensions—socioeconomic, environmental, cultural, and gender-based. This holistic lens ensures that health interventions address not just symptoms but root causes. In Abakaliki, Ebonyi State, attention to women's caregiving roles revealed how traditional burial rites and food preparation norms increased female exposure to the virus. These insights led to gender-specific public health messaging [32].
- **Building Community Trust and Reducing Stigma:** Trust is foundational in outbreak response. Ethnographers, through sustained community engagement, build rapport and help foster mutual understanding. In Irrua, ongoing engagement with Lassa fever survivors and their families contributed to reduced stigma and encouraged open discussions about disease realities. This trust not only facilitates data collection but also strengthens public health cooperation during crises [30].
- **Enhancing Local Surveillance and Early Warning Systems:** By uncovering local knowledge systems, environmental practices, and behavior patterns, ethnographers contribute to the development of grounded disease surveillance frameworks. In Owo, research highlighted community-specific risk behaviors—such as uncovered food storage and household waste management—that were incorporated into local health campaigns. These grassroots insights supported rodent control efforts and strengthened early response strategies [28].
- **Providing Long-term Understanding for Sustainable Policy:** While ethnography may not always deliver quick solutions during acute outbreaks, its long-term contributions are invaluable. Ethnographic research reveals how cultural perceptions, trust dynamics, and systemic inequalities evolve over time. This cumulative knowledge can guide the formulation of lasting policies that resonate with community values and ensure sustainability beyond the immediate crisis.

Policy recommendations for Lassa fever control in Nigeria

- **Integrate Socio-Cultural Approaches in Health Policies:** Current biomedical responses to Lassa fever overlook cultural beliefs. Policies should incorporate local knowledge, involve traditional leaders, and promote community-led health messaging to improve acceptance and compliance.
- **Strengthen Surveillance and Reporting Systems:** Improve early detection by training local health workers, decentralizing reporting, and establishing trusted, community-based surveillance networks using mobile technologies and local leaders.

- **Enhance Public Awareness Campaigns:** Design culturally relevant health education using familiar formats—radio, drama, and storytelling. Engage trusted local figures like religious leaders and market women to boost outreach effectiveness.
- **Invest in Healthcare Infrastructure and Capacity Building:** Increase resources in rural health facilities, ensure availability of PPE, and train health workers to manage Lassa fever. This builds local resilience and ensures timely, safe responses to outbreaks.
- **Address Environmental and Social Determinants of Health:** Improve waste disposal, housing, and rodent control to reduce exposure. Broader efforts to alleviate poverty and improve access to clean water and food security are also essential for prevention.
- **Promote Cross-Sector Collaboration:** Foster partnerships among governments, NGOs, health professionals, and private sector actors. Local authorities should be included in designing context-specific strategies, while public-private collaborations can support diagnostics, vaccines, and health education.

Conclusion

Ethnography offers unique, culturally grounded insights into Lassa fever outbreaks, revealing why communities act the way they do and how public health strategies can better align with lived realities. As shown in case studies from Owo, Irrua, and Abakaliki, ethnographic findings are crucial for understanding spiritual beliefs, stigma, gender roles, and trust issues—all of which influence disease response.

Though ethnographic research faces ethical, logistical, and methodological challenges in outbreak settings, its value in shaping effective, inclusive, and sustainable public health interventions is clear. To control Lassa fever in Nigeria, the health system must shift from a top-down biomedical model to a more collaborative, context-aware approach that prioritizes trust, equity, and cultural sensitivity.

Ethics Approval and Consent to Participate

Not applicable.

Consent for Publication

Not applicable.

Availability of Data and Materials

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Competing Interests

The authors declare that they have no competing interests.

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Authors' Contributions

- E.M.E. conceptualized the study, conducted the literature review, and drafted the manuscript.
- J.P.G. contributed to the theoretical framework, co-developed the structure, and provided edits on public health relevance.
- N.F.T. supported the development of case studies and critically revised the manuscript for intellectual content.
- U.A.I. contributed to citation formatting.
- All authors reviewed and approved the final version of the manuscript.

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Authors' Information

- E.M.E is a public health MSc student at the National Open University of Nigeria, with prior training in Medical Laboratory Science from the University of Jos and specializes in outbreak preparedness and response.
- JPG is affiliated with the Medical Department, Public Health for All Institute, Conakry, Guinea. and has expertise in international health systems.

- N.F.T is a Public Health MSc student with the London School of Hygiene and Tropical Medicine and focuses on global health security.
- U.A.I works with APIN Public Health Initiatives, Nigeria and also an MSc Public Health student with National Open University of Nigeria.

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