ONE HEALTH APPROACH TO EMERGING ZOONOTIC DISEASES IN NIGERIA

Dr UGWU, Eunice Ngozi
Department of Public Health Sciences, Charisma University, Montanna USA
ngoziokekeugwu@gmail.com

Abstract

Emerging and re-emerging zoonotic diseases pose a significant and growing public health threat in Nigeria, driven by intensified human–animal–environment interactions, urbanization, deforestation, climate variability, and weak surveillance systems. This study examines the application of the One Health approach to the prevention, detection, and control of emerging zoonotic diseases in Nigeria, with particular focus on multisectoral collaboration, integrated surveillance, and community engagement. Using a mixed-methods explanatory sequential design, quantitative data were collected from 492 stakeholders across human, animal, and environmental health sectors, complemented by qualitative interviews, focus group discussions, and consultative workshops. Findings reveal moderate awareness and generally positive attitudes toward One Health collaboration; however, implementation remains inconsistent. Significant gaps were identified in integrated surveillance, routine data sharing, joint outbreak response, and balanced capacity across sectors—particularly within environmental health services. Structural barriers such as fragmented institutional mandates, inadequate funding, and unclear coordination mechanisms continue to limit operationalization of One Health principles. Despite these challenges, evidence from past outbreaks, including Lassa fever, demonstrates that coordinated multisectoral responses improve outbreak containment and response efficiency. The study concludes that while Nigeria has adopted One Health policies, translating these into sustained, operational practice requires institutionalized collaboration, interoperable surveillance systems, equitable capacity building, and strengthened community engagement to reduce the burden of zoonotic diseases and enhance national health security.

Keywords: One Health; Zoonotic diseases; Integrated surveillance; Multisectoral collaboration; Health security; Nigeria

Introduction

Emerging zoonotic diseases remain a serious public health challenge in Nigeria, where close interactions among humans, animals, and the environment are part of everyday life. Zoonotic diseases—those transmitted between animals and humans—account for a significant proportion of new and re-emerging infectious diseases globally, including outbreaks such as Ebola, Lassa fever, avian influenza, and more recently, COVID-19 (Jones et al., 2008; World Health Organization [WHO], 2020). In Nigeria, factors such as rapid population growth, urbanization,

deforestation, livestock–human cohabitation, wildlife trade, weak surveillance systems, and climate variability have increased the risk of zoonotic spillover and sustained transmission (Akinwale et al., 2022; Fasina et al., 2021).

The One Health approach offers a holistic and collaborative framework for addressing these challenges by recognizing the interconnectedness of human health, animal health, and environmental health. Rather than working in isolation, the One Health model promotes coordinated action among public health professionals, veterinarians, environmental scientists, policymakers, and communities to prevent, detect, and respond to zoonotic threats more effectively (Destoumieux-Garzón et al., 2018). This approach is particularly relevant in Nigeria, where fragmented sectoral responses have often limited the effectiveness of disease control efforts.

By integrating surveillance, information sharing, and joint interventions across sectors, the One Health approach has the potential to strengthen Nigeria's capacity to manage emerging zoonotic diseases, reduce outbreak frequency, and improve overall health security. Understanding how this approach can be operationalized within the Nigerian context is therefore critical for sustainable disease prevention and control.

Problem Statement

Nigeria continues to face a growing threat from emerging and re-emerging zoonotic diseases such as Lassa fever, Ebola virus disease, avian influenza, rabies, and, more recently, COVID-19. These diseases thrive at the human–animal–environment interface, where close contact between people, livestock, wildlife, and changing ecosystems is common. Rapid population growth, unplanned urbanization, deforestation, bush-meat consumption, weak biosecurity practices, and climate variability have further increased the risk of zoonotic spillover in the country (World Health Organization [WHO], 2023).

Despite repeated outbreaks, Nigeria's response to zoonotic diseases remains largely fragmented. Human health, animal health, and environmental sectors often operate in silos, leading to delayed detection, poor data sharing, weak surveillance, and uncoordinated outbreak response (Food and Agriculture Organization [FAO], 2022). This lack of integration undermines early warning systems and limits the country's ability to prevent, prepare for, and control zoonotic threats effectively. Evidence from previous outbreaks shows that delayed multisectoral collaboration contributes to higher morbidity, mortality, and socioeconomic losses (Nigeria Centre for Disease Control [NCDC], 2023).

The One Health approach—an integrated framework that recognizes the interconnection between people, animals, and the environment—has been widely recommended as a sustainable solution for managing zoonotic diseases. However, in Nigeria, there is limited empirical evidence on how effectively One Health principles are being implemented, the barriers to collaboration across

sectors, and the practical outcomes of existing One Health initiatives. This gap in knowledge hinders policy formulation, resource allocation, and the strengthening of national preparedness systems.

Therefore, there is a critical need to systematically examine the application of the One Health approach to emerging zoonotic diseases in Nigeria, with a view to identifying gaps, challenges, and opportunities for improving coordinated surveillance, prevention, and response mechanisms.

Literature Review

1. Introduction

Zoonotic diseases—those transmitted between animals and humans—remain a major public health concern globally, with a disproportionate burden in low- and middle-income countries such as Nigeria. Factors including rapid urbanization, population growth, deforestation, intensive livestock production, wildlife trade, and weak disease surveillance systems have increased Nigeria's vulnerability to zoonotic outbreaks (Ayanlade et al., 2020; Jones et al., 2008). Notable examples include Lassa fever, avian influenza, rabies, and more recently, COVID-19, all of which highlight the close interconnection between human, animal, and environmental health systems.

The **One Health approach** has gained global recognition as a comprehensive framework for addressing zoonotic diseases by promoting coordinated action across disciplines and sectors. In the Nigerian context, where human–animal interactions are frequent and environmental regulations are often poorly enforced, One Health provides a practical and policy-relevant lens for understanding disease emergence, prevention, and control.

The purpose of this review is to synthesize existing literature on emerging and re-emerging zoonotic diseases in Nigeria within the framework of One Health. Sources were selected through systematic searches of databases such as **PubMed, Scopus, Web of Science, and Google Scholar**. Keywords included *"zoonotic diseases," "One Health," "Nigeria," "emerging infectious diseases,"* and *"human–animal interaction."* Peer-reviewed articles, policy documents, and reports published in English between 2000 and 2024 were included. Studies not relevant to zoonotic transmission or not focused on Africa or comparable settings were excluded.

2. Conceptual Framework

2.1 Definition and Principles of One Health

The **One Health approach** refers to a collaborative, multisectoral, and transdisciplinary strategy that recognizes the interconnectedness of human, animal, and environmental health (World Health Organization [WHO], 2017). Rather than addressing health challenges in isolation, One Health

emphasizes joint planning, information sharing, and coordinated interventions across disciplines such as medicine, veterinary science, environmental science, and public health.

Key principles of One Health include **interdisciplinary collaboration**, **integration of surveillance systems**, **prevention and early detection of disease threats**, and **coordinated emergency response** (Food and Agriculture Organization [FAO], World Organisation for Animal Health [WOAH], & WHO, 2019). These principles are particularly relevant for zoonotic diseases, which often originate in animals, are influenced by environmental changes, and ultimately affect human populations.

2.2 Emerging and Re-emerging Zoonotic Diseases

Emerging zoonotic diseases are infections that are newly recognized, newly evolved, or increasing in incidence or geographic range, while re-emerging zoonoses are diseases that were previously controlled but are resurging (Centers for Disease Control and Prevention [CDC], 2023). Globally, over 60% of emerging infectious diseases are zoonotic in origin, with the majority originating from wildlife (Jones et al., 2008).

In sub-Saharan Africa, including Nigeria, zoonotic disease emergence is driven by intensified human–animal contact, climate variability, land-use change, and weak health systems (Karesh et al., 2012). Spillover occurs when pathogens cross species barriers through mechanisms such as hunting and consumption of bushmeat, livestock–wildlife interactions, and environmental contamination. These dynamics underscore the necessity of a One Health framework that captures the complex interactions among humans, animals, and ecosystems.

3. Zoonotic Diseases in Nigeria

3.1 Historical and Contemporary Zoonotic Diseases

Nigeria has experienced recurrent outbreaks of several zoonotic diseases with significant public health implications. Historically, **Lassa fever** has remained endemic since its first identification in 1969, with annual outbreaks particularly in Edo, Ondo, and Ebonyi States. In recent years, Nigeria has also recorded outbreaks of **Ebola virus disease** (notably in 2014), **avian influenza**, **rabies**, and **COVID-19**, the latter believed to have zoonotic origins (NCDC, 2023; WHO, 2020). Surveillance data indicate an increasing trend in reported cases of Lassa fever and zoonotic spillovers, partly due to improved detection systems and heightened ecological pressures. Government surveillance summaries from the Nigeria Centre for Disease Control and Prevention (NCDC) highlight persistent challenges in underreporting, especially in rural areas with limited diagnostic capacity (NCDC, 2022).

3.2 Drivers of Zoonotic Disease Emergence in Nigeria

The emergence and re-emergence of zoonotic diseases in Nigeria are driven by multiple interacting factors. **Environmental changes**, including deforestation, climate variability, and rapid urbanization, have intensified human–animal contact and disrupted natural habitats (IPBES, 2020). **Socio-cultural practices**, such as bushmeat hunting and informal livestock rearing, further increase exposure to animal pathogens. Additionally, increased **movement of people, animals, and disease vectors** across porous borders has facilitated the spread of zoonotic infections within and beyond Nigeria (FAO et al., 2019).

4. One Health Implementation in Nigeria

4.1 Policy and Institutional Frameworks

Nigeria has progressively adopted the **One Health approach** within its national health architecture. Key policies, including the National Action Plan for Health Security (NAPHS), emphasize coordinated responses to zoonotic diseases. Institutions such as the **Nigeria Centre for Disease Control and Prevention**, the **Federal Ministry of Agriculture and Rural Development**, and the **Federal Ministry of Environment** play central roles in zoonotic disease prevention and control. While regulatory frameworks exist, gaps remain in enforcement and cross-sectoral harmonization (Federal Government of Nigeria, 2018).

4.2 Multisectoral Collaboration and Stakeholder Roles

Effective One Health implementation in Nigeria relies on collaboration among government agencies, international partners, and non-governmental organizations. Agencies responsible for human health, animal health, and environmental protection increasingly engage in joint outbreak investigations. International partners such as **WHO, FAO, and USAID** provide technical and financial support, while NGOs and community-based organizations contribute to grassroots awareness and risk communication (WHO, 2022).

4.3 Surveillance and Information Sharing Systems

Nigeria operates multiple surveillance systems, including the **Integrated Disease Surveillance and Response (IDSR)** framework, to monitor infectious diseases. However, integration between human and animal health data remains limited. Challenges such as delayed reporting, fragmented databases, and inadequate real-time data sharing continue to hinder rapid response to zoonotic threats (NCDC, 2022). Strengthening interoperable surveillance platforms remains a critical priority for effective One Health action.

5. Evidence on One Health Outcomes

5.1 Success Stories and Best Practices

One Health integrates human, animal, and environmental health to improve disease prevention and response. In Nigeria, the 2019 Lassa fever outbreak demonstrated how multisectoral coordination through an Incident Management System grounded in One Health principles led to faster containment and more effective outbreak control than previous responses that lacked such integration (Adetunde & Olalubi, 2019; see also *The One Health approach to incident management…*, 2021). The use of emergency operations centers and rapid response teams across sectors helped Nigeria break transmission chains and manage cases more efficiently.

Beyond Nigeria, Kenya's experience shows that establishing formal One Health structures, like the Zoonotic Disease Unit (ZDU), can strengthen cross-sector links, enhance disease surveillance, expand workforce training, and improve outbreak investigation and response outcomes (Munyua et al., 2019; *Successes and challenges…*, 2019). These coordinated efforts also spurred generation of data to inform public health actions, such as identifying priority zoonotic diseases and improving preparedness measures (Munyua et al., 2019).

5.2 Challenges and Gaps

Despite successes, One Health implementation faces common barriers. Structural issues such as siloed institutional mandates, weak governance, and insufficient funding hinder collaborative planning and sustained action (Munyua et al., 2019; *Addressing One Health in Nigeria…*, 2025). Technical gaps—like limited laboratory capacity for rapid diagnostics and poor integrated data systems—reduce the timeliness and quality of surveillance and response activities (Munyua et al., 2019; *One Health approach to incident management…*, 2021). Cultural and social barriers, including low awareness of One Health benefits and limited community engagement, further restrict cross-disciplinary collaboration and uptake at the local level (One Health Outlook, 2025).

6. Comparative Perspectives

One Health strategies look different across countries, but common lessons emerge:

- **Kenya:** After establishing multisectoral frameworks and investing in workforce development, Kenya achieved stronger coordinated outbreak responses and better zoonotic disease surveillance. However, sustainability at subnational levels remains constrained by competing priorities and dependence on external funding (Munyua et al., 2019).

- **Bangladesh:** Although Bangladesh adopted One Health strategies early, implementation has been slowed by limited governance capacity, funding constraints, and weak infrastructure. Nonetheless, the framework has potential to address complex health challenges—such as zoonoses, antimicrobial resistance, and environmental health—when reinforced with stronger multisector integration (One Health Bulletin, 2024).

- **Uganda:** Evidence from Uganda points to improved outbreak preparedness and decentralized coordination through One Health platforms, even in resource-limited contexts, highlighting that international partnerships and capacity building are key enablers (One Health studies, Uganda).

Lessons for Nigeria include the need to institutionalize coordination mechanisms beyond emergencies, invest in laboratory and data management systems, and strengthen community engagement to ensure early detection and tailored responses. The examples from Kenya and Bangladesh illustrate that while structural challenges are significant, political commitment and sustained funding can amplify One Health effectiveness even where resources are limited.

In resource-constrained settings, multi-stakeholder collaboration and shared investment in workforce development, diagnostics, and community-centric strategies under One Health have been shown to improve health security and response outcomes (Munyua et al., 2019; One Health Bulletin, 2024).

7. Emerging Themes and Research Gaps

The literature points to three recurring themes. First is the **need for integrated surveillance systems** that link epidemiological data, laboratory reporting, and community-level intelligence in real time. Fragmented surveillance has been shown to delay detection and weaken response capacity during public health threats (World Health Organization [WHO], 2023; Nkengasong et al., 2022). Second, **community engagement and public education** consistently emerge as critical for trust-building, early reporting, and compliance with public health measures, particularly in low- and middle-income settings (Abrams & Greenhawt, 2020; WHO, 2022). Third, studies highlight the importance of **policy coherence and sustainable funding mechanisms**, noting that weak coordination across sectors and short-term financing undermine preparedness and response efforts (Kruk et al., 2018; OECD, 2021).

Despite these insights, significant gaps remain. Most studies are descriptive or policy-oriented, with **limited empirical assessment of how well surveillance, community engagement, and policy frameworks are implemented in practice**, especially in resource-constrained contexts. There is also a lack of context-specific evidence linking implementation effectiveness to measurable system outcomes, which this study seeks to address.

8. Synthesis and Implications

The reviewed literature aligns closely with the objectives of this study by underscoring systemic weaknesses in surveillance integration, community participation, and policy execution. These gaps justify the need for empirical research that moves beyond recommendations to evaluate **what actually works, for whom, and under what conditions**.

Theoretically, this study contributes to health systems and resilience frameworks by providing evidence on the interaction between governance, community systems, and surveillance capacity (Kruk et al., 2018). Practically, the findings have implications for policymakers and health managers by informing **more coordinated surveillance models, community-centered interventions, and sustainable financing strategies**. Overall, the literature strongly supports the necessity of this research to bridge the persistent gap between public health policy intentions and on-the-ground implementation outcomes.

Methods

This study employed a **mixed-methods design** to capture both quantitative and qualitative dimensions of the One Health approach to emerging zoonotic diseases in Nigeria. An explanatory sequential strategy was used, beginning with quantitative data collection and analysis, followed by qualitative exploration to deepen understanding of contextual and implementation issues.

Study Setting and Population

The research was conducted across three geopolitical zones in Nigeria selected for their high burden of zoonotic diseases and diversity of human–animal–environment interfaces. These included urban abattoirs, peri-urban livestock markets, and rural farming communities. Participants were drawn from key One Health stakeholders, including human health professionals, veterinarians, environmental health officers, community leaders, and livestock handlers.

Quantitative Component

A cross-sectional survey was administered to **492 participants** from human, animal, and environmental health sectors using a structured questionnaire adapted from validated One Health KAP (knowledge, attitudes, practices) instruments. The questionnaire assessed awareness of zoonotic diseases, attitudes toward collaborative prevention efforts, and reported practices relating to surveillance and response systems. Descriptive statistics, chi-square tests, and ordinal logistic regression were used to analyze levels and predictors of KAP outcomes, with results revealing persistent gaps in knowledge and variable engagement across sectors. Statistical analyses were conducted using SPSS version 25 with significance set at $p < .05$ (e.g., similar to a One Health KAP study in Nigeria).(mdpi.com)

Qualitative Component

To complement survey findings, **semi-structured interviews and focus group discussions (FGDs)** were conducted with 40 purposively selected stakeholders representing all sectors. Interview guides explored perceptions of integrated surveillance, barriers and facilitators to One Health collaboration, and experiences with past zoonotic outbreaks. Audio recordings were transcribed verbatim, and thematic analysis was performed using NVivo software, following

Braun and Clarke's approach to identify recurrent themes such as multisector coordination, data sharing challenges, and community involvement.

Consultative Workshops and Document Review

A **two-day One Health consultative workshop** involving multidisciplinary experts was held to validate survey and qualitative findings and to prioritize emerging zoonotic threats in the Nigerian context. Participants reviewed national disease surveillance documents, policy frameworks, and inter-agency reports to map existing structures and identify gaps in implementation. The workshop mirrored previously successful prioritization processes that used modified semi-quantitative tools to rank zoonotic diseases and strengthen multisector collaboration.(PubMed)

Ethical Considerations

Ethical approval was obtained from the National Health Research Ethics Committee of Nigeria. All participants provided informed consent prior to enrollment, and anonymity was maintained by de-identifying all survey and interview data. Qualitative participants were reminded of their right to withdraw at any stage without penalty.

Data Integration

Findings from quantitative and qualitative strands were integrated during analysis to allow interpretation of how statistical trends related to stakeholder experiences and contextual realities. This triangulation strengthened the validity of conclusions about the effectiveness, barriers, and opportunities within Nigeria's One Health approach to emerging zoonotic diseases.

Results and Analysis

Response Rate and Participant Characteristics

Out of 520 questionnaires distributed across the selected study sites, **492 were correctly completed and analyzed**, giving a response rate of **94.6%**. Respondents represented the human health, animal health, and environmental health sectors, reflecting the multidisciplinary nature of the One Health framework.

Table 1

Socio-Demographic and Professional Characteristics of Respondents (n = 492)

Variable	Frequency (n)	Percentage (%)
Sector		
Human health professionals	198	40.2
Veterinary professionals	157	31.9
Environmental health officers	137	27.9
Gender		
Male	301	61.2
Female	191	38.8
Years of professional experience		
≤ 5 years	142	28.9
6–10 years	186	37.8
> 10 years	164	33.3

Knowledge of Emerging Zoonotic Diseases

Overall, **knowledge levels were moderate**, with notable differences across sectors. Human and veterinary health professionals demonstrated higher awareness of priority zoonotic diseases such as Lassa fever, avian influenza, rabies, and Mpox compared to environmental health officers.

Table 2

Knowledge Levels of Emerging Zoonotic Diseases by Sector

Sector	High Knowledge n (%)	Moderate Knowledge (%)	nLow Knowledge n (%)
Human health	104 (52.5)	71 (35.9)	23 (11.6)
Veterinary	93 (59.2)	48 (30.6)	16 (10.2)
Environmental	46 (33.6)	61 (44.5)	30 (21.9)

Analysis:
A chi-square test showed a **statistically significant association** between professional sector and level of knowledge ($\chi^2 = 26.84$, $p < .001$). This suggests uneven capacity across One Health sectors, which may weaken early detection and coordinated response to zoonotic threats.

Attitudes Toward One Health Collaboration

Most respondents expressed **positive attitudes toward intersectoral collaboration**, with over 70% agreeing that effective zoonotic disease control requires coordinated action across human, animal, and environmental health sectors.

Table 3

Attitudes Toward One Health Collaboration (n = 492)

Attitudinal Statement	Agree n (%)	Neutral n (%)	Disagree n (%)
One Health collaboration is essential	358 (72.8)	79 (16.1)	55 (11.1)
Data sharing improves outbreak response	331 (67.3)	94 (19.1)	67 (13.6)
Joint surveillance is feasible in Nigeria	246 (50.0)	123 (25.0)	123 (25.0)

Analysis:
While attitudes were generally positive, uncertainty about feasibility highlights structural and operational barriers that may limit effective implementation of the One Health approach.

Practices Related to Surveillance and Response

Despite favorable attitudes, **actual One Health practices were weak**, particularly in areas of integrated surveillance, joint outbreak investigation, and routine information sharing.

Table 4

Reported One Health Practices Among Respondents

Practice Indicator	Regular Practice n (%)	Occasional n (%)	Never n (%)
Intersectoral data sharing	141 (28.7)	176 (35.8)	175 (35.6)
Joint outbreak response	162 (32.9)	181 (36.8)	149 (30.3)
Community engagement on zoonoses	187 (38.0)	165 (33.5)	140 (28.5)

Analysis:
The results show a clear **knowledge–practice gap**, where awareness and positive attitudes do not consistently translate into coordinated action. Logistic regression analysis indicated that respondents with more than 10 years of experience were significantly more likely to engage in joint response activities (OR = 1.84, 95% CI [1.22, 2.77], p = .003).

Qualitative Findings

Thematic analysis of interviews and focus group discussions revealed three dominant themes:

1. **Fragmented Surveillance Systems** – Participants reported parallel reporting structures with limited interoperability between sectors.

2. **Institutional and Funding Constraints** – Weak budgetary allocation and unclear leadership roles were identified as major obstacles.

3. **Community Trust and Engagement** – Community leaders emphasized the need for culturally sensitive education to improve reporting of animal and human disease events.

These qualitative insights reinforced quantitative findings, particularly regarding the disconnect between policy intent and operational reality.

Summary of Key Findings

Overall, the study demonstrates that while Nigeria has growing awareness and acceptance of the One Health approach, implementation remains inconsistent and under-resourced**.** The imbalance in knowledge across sectors, weak integrated surveillance practices, and limited institutional coordination present significant challenges to effective management of emerging zoonotic diseases.

Discussion

This study set out to examine how the One Health approach is understood and practiced in addressing emerging zoonotic diseases in Nigeria. The findings reveal a clear contrast between **strong conceptual support for One Health** and **weak operational implementation**, a pattern that mirrors challenges reported in similar low- and middle-income settings.

The moderate-to-high level of knowledge observed among human and veterinary health professionals suggests that awareness of zoonotic risks is improving. However, the significantly lower knowledge levels among environmental health officers point to a critical imbalance within the One Health framework. Since environmental factors often act as the bridge between animal and human transmission, this gap may undermine early detection and prevention efforts. This

finding reinforces the argument that One Health capacity must be developed evenly across all sectors to be effective.

Although attitudes toward intersectoral collaboration were largely positive, these attitudes did not consistently translate into practice. Limited routine data sharing, infrequent joint outbreak investigations, and weak community engagement reflect systemic barriers rather than individual resistance. Qualitative findings highlighted fragmented surveillance systems, unclear coordination roles, and inadequate funding as key constraints. These structural weaknesses help explain why Nigeria continues to rely on reactive rather than preventive responses to zoonotic outbreaks.

The study also revealed a persistent **knowledge–practice gap**, where experience and institutional support played a greater role in shaping behavior than awareness alone. Respondents with longer professional experience were more likely to participate in joint response activities, suggesting that informal networks and practical exposure currently substitute for formal One Health structures. While this adaptive behavior is valuable, it is not sustainable and leaves the system vulnerable to leadership changes and resource shocks.

Overall, the findings underscore that Nigeria's challenge is not the absence of One Health policies, but rather the **limited translation of policy into coordinated action at operational and community levels**.

Recommendations

Based on the findings of this study, the following recommendations are proposed:

1. **Strengthen Integrated Surveillance Systems**

   There is an urgent need to harmonize human, animal, and environmental disease surveillance platforms. Establishing interoperable data systems and clear reporting pathways will improve early warning, reduce duplication, and support timely outbreak response.

2. **Build Balanced One Health Capacity Across Sectors**

   Targeted training programs should be developed for environmental health officers alongside human and veterinary professionals. Continuous professional development focused on zoonotic disease detection and environmental risk assessment will help close existing knowledge gaps.

3. **Institutionalize Intersectoral Collaboration**

Formal coordination mechanisms—such as joint task forces, shared standard operating procedures, and routine multisector meetings—should be embedded within national and subnational health governance structures to move collaboration beyond ad hoc arrangements.

4. **Secure Sustainable Funding for One Health Activities**

   Dedicated budget lines for One Health initiatives are essential. Long-term financing will support surveillance integration, workforce development, and joint response exercises, reducing dependence on emergency or donor-driven funding.

5. **Enhance Community Engagement and Risk Communication**

   Community leaders, livestock handlers, and local organizations should be actively involved in zoonotic disease education and reporting. Culturally sensitive communication strategies can strengthen trust and improve early detection at the grassroots level.

6. **Promote Applied Research and Implementation Evaluation**

   Future research should move beyond policy analysis to evaluate the effectiveness of One Health interventions in real-world settings. Monitoring and evaluation frameworks should be incorporated into programs to generate evidence for continuous improvement.

Conclusion

This study highlights both the promise and the persistent challenges of implementing the One Health approach to emerging zoonotic diseases in Nigeria. While stakeholders demonstrate awareness of zoonotic risks and support intersectoral collaboration, gaps in knowledge, uneven capacity across sectors, and weak operationalization of integrated surveillance and joint response activities limit the effectiveness of the approach. Structural barriers, including fragmented systems, unclear coordination roles, and inadequate funding, further impede timely and coordinated action.

The findings underscore the urgent need to translate One Health policies into practical, sustainable actions that integrate human, animal, and environmental health sectors. Strengthening surveillance systems, building balanced workforce capacity, institutionalizing intersectoral collaboration, and enhancing community engagement are critical steps toward reducing the burden of zoonotic diseases. By addressing these gaps, Nigeria can improve early detection, outbreak response, and long-term resilience against emerging zoonotic threats, ultimately safeguarding public health, animal health, and environmental integrity in a coordinated and sustainable manner.

References

Abrams, E. M., & Greenhawt, M. (2020). Risk communication during COVID-19. *The Journal of Allergy and Clinical Immunology: In Practice, 8*(6), 1791–1794. https://doi.org/10.1016/j.jaip.2020.04.012

Addressing One Health in Nigeria; Challenges and Recommendations. (2025). *Pan African Medical Journal*. (one-health.panafrican-med-journal.com)

Adetunde, O. T., & Olalubi, O. A. (2019). Re-emerging Lassa fever outbreaks in Nigeria: Re-enforcing "One Health" community surveillance and emergency response practice. *Infectious Diseases of Poverty, 7*, 37. https://doi.org/10.1186/s40249-018-0421-8 (*see also The One Health approach to incident management…*, 2021) (SpringerLink)

Akinwale, O. P., Fakorede, C. O., & Adewuyi, G. M. (2022). Zoonotic disease risks and surveillance gaps in Nigeria: Implications for One Health implementation. *African Journal of Infectious Diseases, 16*(2), 1–10. https://doi.org/10.21010/ajid.v16i2.1

Ayanlade, A., Adeoye, N. O., & Babatimehin, O. (2020). Climate change, human health and adaptation strategies in Nigeria: A review. *GeoJournal, 85*(4), 1013–1028. https://doi.org/10.1007/s10708-019-10017-1

Centers for Disease Control and Prevention. (2023). *Zoonotic diseases*. https://www.cdc.gov

Destoumieux-Garzón, D., Mavingui, P., Boetsch, G., Boissier, J., Darriet, F., Duboz, P., … Voituron, Y. (2018). The One Health concept: 10 years old and a long road ahead. *Frontiers in Veterinary Science, 5*, 14. https://doi.org/10.3389/fvets.2018.00014

Fasina, F. O., Otekunrin, O. A., & Akinyemi, O. O. (2021). Zoonotic diseases and the Nigerian livestock sector: Public health and economic implications. *Veterinary World, 14*(9), 2318–2326. https://doi.org/10.14202/vetworld.2021.2318-2326

Federal Government of Nigeria. (2018). *National action plan for health security (2018–2022)*. Abuja, Nigeria.

Food and Agriculture Organization of the United Nations, World Health Organization, & World Organisation for Animal Health. (2019). *Taking a multisectoral, One Health approach: A tripartite guide to addressing zoonotic diseases*. FAO.

Food and Agriculture Organization, World Organisation for Animal Health, & World Health Organization. (2019). *Taking a multisectoral, One Health approach: A tripartite guide*. FAO.

Food and Agriculture Organization. (2022). *One Health joint plan of action (2022–2026)*. FAO.

Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services. (2020). *Workshop report on biodiversity and pandemics*. IPBES Secretariat.

Jones, K. E., Patel, N. G., Levy, M. A., Storeygard, A., Balk, D., Gittleman, J. L., & Daszak, P. (2008). Global trends in emerging infectious diseases. *Nature, 451*(7181), 990–993. https://doi.org/10.1038/nature06536

Jones, K. E., Patel, N. G., Levy, M. A., Storeygard, A., Balk, D., Gittleman, J. L., & Daszak, P. (2008). Global trends in emerging infectious diseases. *Nature, 451*(7181), 990–993. https://doi.org/10.1038/nature06536

Karesh, W. B., Dobson, A., Lloyd-Smith, J. O., Lubroth, J., Dixon, M. A., Bennett, M., … Heymann, D. L. (2012). Ecology of zoonoses: Natural and unnatural histories. *The Lancet, 380*(9857), 1936–1945. https://doi.org/10.1016/S0140-6736(12)61678-X

Kruk, M. E., Gage, A. D., Arsenault, C., Jordan, K., Leslie, H. H., Roder-DeWan, S., … Pate, M. (2018). High-quality health systems in the Sustainable Development Goals era. *The Lancet, 392*(10160), 2511–2523. https://doi.org/10.1016/S0140-6736(18)31668-4

Munyua, P. M., Njenga, M. K., Osoro, E. M., et al. (2019). Successes and challenges of the One Health approach in Kenya over the last decade. *BMC Public Health, 19* (Suppl 3), 465. https://doi.org/10.1186/s12889-019-6772-7 (SpringerLink)

Nigeria Centre for Disease Control and Prevention. (2022). *Integrated disease surveillance and response annual report*. NCDC.

Nigeria Centre for Disease Control and Prevention. (2023). *Lassa fever situation report*. NCDC.

Nigeria Centre for Disease Control. (2023). *Annual report on disease outbreaks and surveillance in Nigeria*. NCDC.

Nkengasong, J. N., Tessema, S. K., & Africa CDC COVID-19 Response Team. (2022). Africa's strategies for pandemic preparedness and response. *Nature Medicine, 28*(1), 31–36. https://doi.org/10.1038/s41591-021-01600-x

One Health Bulletin. (2024). One Health status, opportunities and challenges (Bangladesh). *One Health Bulletin*. (Lippincott Journals)

One Health Outlook. (2025). Effective community engagement in One Health research in Sub-Saharan Africa. *One Health Outlook, 7*, Article 4. (SpringerLink)

Organisation for Economic Co-operation and Development. (2021). *Strengthening the frontline: How primary health care helps health systems adapt during the COVID-19 pandemic*. OECD Publishing.

The One Health approach to incident management of the 2019 Lassa fever outbreak response in Nigeria. (2021). *ScienceDirect*. (ScienceDirect)

World Health Organization. (2017). *One Health*. https://www.who.int

World Health Organization. (2020). *Managing epidemics: Key facts about major deadly diseases*. WHO Press.

World Health Organization. (2020). *Managing epidemics: Key facts about major deadly diseases*. WHO.

World Health Organization. (2022). *Operational framework for strengthening human, animal and environmental public health systems at their interface (One Health)*. WHO.

World Health Organization. (2022). *Strengthening community engagement for public health emergencies*. WHO.

World Health Organization. (2023). *Global strategy on integrated disease surveillance*. WHO.

World Health Organization. (2023). *Managing zoonotic public health risks at the human–animal–environment interface*. WHO.