2ND ECOWAS LASSA FEVER INTERNATIONAL CONFERENCE

BOOK OF ABSTRACT

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Abstract ID: ELIC202591
Oral 001

Building a Skilled Workforce for Lassa Fever Response: Regional Clinical Management Training Outcomes in the ECOWAS Region.

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Introduction: Lassa fever, a viral hemorrhagic illness endemic to West Africa, poses significant public health challenges due to its high morbidity and mortality rates, especially among healthcare workers (HCWs) and vulnerable populations. In response to these challenges and the recurring outbreaks in the ECOWAS region, a Regional Training of Trainers on Clinical Management of Lassa Fever was held from March 24–28, 2025, in Lomé, Togo. This training, organized by the West African Health Organisation (WAHO) in collaboration with the World Health Organization (WHO) and other partners, aimed to enhance the region's capacity to manage Lassa fever cases by equipping clinicians with up-to-date knowledge and practical skills.

Methods: Thirty-five participants from 10 ECOWAS Member States were trained using a dual-pathway approach that focused on early detection and referral and Intensive clinical management. The methodology combined expert-led presentations, practical demonstrations, scenario-based discussions, and a comprehensive simulation exercise (SIMEX) to reinforce the learning experience.

Results: The training covered key topics including infection prevention and control (IPC), case triage, management of complications (e.g., shock, renal and neurological conditions), laboratory diagnostics, mental health support, and survivor care. A significant highlight was the hands-on simulation at CHU Campus, Lomé, which tested participants' clinical response in high-risk scenarios. Evaluation results showed an average improvement of 46% in post-test scores and high satisfaction among participants, with 96% affirming the relevance and applicability of the training content. Participants recommended scaling up similar training across Member States and proposed the development of regional guidelines, training manuals, and cross-border referral frameworks.

Conclusion: This training marks a critical step towards building a resilient regional workforce capable of managing Lassa fever and mitigating its public health impact by fostering harmonized practices, improved detection, and timely clinical interventions.

Keywords: *Lassa Fever, Clinical Case Management, ECOWAS, Simulation Exercise, Health Workforce Capacity*

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Oral 002

Strengthening Regional Clinical Trial Capacity for Lassa Fever: Lessons from a Multi-Country Site Assessment in West Africa

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Introduction: The World Health Organization (WHO) classifies Lassa fever as a priority pathogen due to its escalating burden and geographic spread, exacerbated by climate change and population growth. To accelerate vaccine development, the Coalition for Epidemic Preparedness Innovations (CEPI) launched the Advancing Research Capacity in West Africa (ARC-WA) project. Co-led by the Medical Research Council Unit, The Gambia (MRCG) and the International Vaccine Institute (IVI), this initiative aims to strengthen the region's ability to conduct high-quality clinical trials for Lassa fever and other outbreaks.

Methods: Potential sites were identified through clinical trial registries, expert consultations, and feasibility questionnaires. These were followed by on-site visits to assess site capacity across key focus areas including infrastructure, laboratories, data management, regulatory compliance, community engagement, and financial governance. Sites were then ranked against predefined criteria to and costed proposals developed.

Results We evaluated 36 clinical trial sites across five Lassa-affected countries (Nigeria: 13, Liberia: 4, Sierra Leone: 5, Benin: 5, Guinea: 9). Some sites had strong existing capacity, including trained staff, functional IT systems, and effective communication structures. However, many exhibited a variety of critical gaps. These included limited epidemiological data necessary for Phase 3 trials, inadequate infrastructure in clinical units and emergency care, unreliable power supply, and underdeveloped ethics committees. Additionally, several institutions had limited experience with financial governance, highlighting a critical area of need to support effective research fund management.

Conclusion: Our findings highlight key barriers to trial readiness: inadequate infrastructure, weak regulatory systems, weak financial governance, and limited epidemiological data. Addressing these challenges will require targeted capacity-building, regulatory support, and sustained investment in laboratories and emergency care. These insights form the basis for a framework to enhance site preparedness, strengthen clinical trial capacity, and support more effective epidemic response across West Africa.

Keywords: *Lassa fever, clinical trial, Africa, capacity building, epidemic preparedness*

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Oral 003

Bridging the Gaps, Building the Future: Operationalizing One Health Surveillance and Information Sharing Operational Tool (SIS-OT) in Nigeria

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Introduction: Zoonotic diseases represent a substantial growing threat in Nigeria, exacerbated by rapid urbanization, population pressure, and complex interactions at the human animal environment interface. Nigeria, implemented the Surveillance and Information Sharing Operational Tool (SIS-OT), developed by the Tripartite organizations FAO, WHO, and WOAH, in response to these risks. This initiative aimed to evaluate, prioritize, and strengthen coordinated surveillance capacities within the National One Health (OH) framework across sectors and administrative levels.

Methods: A participatory national workshop was conducted from September 28 to October 1, 2024, convening over 60 experts across the human-animal-environment health sectors and key technical partners. Utilizing the SIS-OT Excel based workbook, participants assessed 32 core activities critical to functional multisectoral surveillance systems. Evaluation covered five thematic domains: pre-planning, assessment, planning, implementation, and monitoring & evaluation. Four priority zoonotic diseases: Lassa fever, Mpox, Bovine tuberculosis and Rabies guided discussions. Capacity levels were scored, and targeted activities selected to develop a five-year roadmap for implementation.

Results: Assessment revealed critical systemic gaps. Of the 32 activities evaluated, 56.3% were at the lowest capacity level (level 1), with only 6.3% reaching full completion. Key weaknesses were observed in legal frameworks, workforce planning, infrastructure mapping, and data interoperability. The presence of a national OH secretariat, growing political momentum, multisectoral participation and willingness to institutionalize OH coordination at sub-national levels were highlighted as enablers. The developed roadmap outlined progressive actions; stakeholder mapping, training on data systems, legal harmonization workshops, simulation exercises, and establishment of data sharing agreements.

Conclusion: The SIS-OT process revealed key gaps and fostered cross sector dialogue, producing a clear roadmap to enhance OH surveillance and laboratory networks. Addressing workforce development, digital systems, legal frameworks, and coordination is vital. This approach provides a scalable model for ECOWAS countries.

Keywords: *Zoonoses, SIS-OT, Nigeria*

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Oral 004

Enhancing Cross-Border Mpox Surveillance: Lessons from Côte d'Ivoire and Ghana's Bilateral Collaboration

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Introduction: In response to the Mpox resurgence, Côte d'Ivoire and Ghana, two neighboring ECOWAS countries with shared borders and trade corridors, held a high-level bilateral meeting in Takoradi in February 2025. With support from WAHO, the objective was to strengthen real-time surveillance, risk communication, and coordinated response to cross-border outbreaks. This study describes the dynamics of cross-border health cooperation within the framework of the MPOX, identifying the levers and obstacles to effective regional integration.

Method: An exploratory qualitative study based on inductive analysis, combining focus groups and document review, was used. Thirty-eight participants from human (21), animal (13), and environmental health (04) sectors shared country experiences and identified operational synergies in coordination, surveillance, case management, laboratory response, and community engagement. The discussions enabled comparative analysis, the documentation of good practices and the development of concrete recommendations.

Results: The workshop revealed major gaps in harmonized indicators, leading to the adoption of a shared surveillance indicator framework. Both countries acknowledged the absence of legal frameworks for cooperation and proposed a formal MoU. Weak logistical capacity at points of entry and poor data interoperability were flagged. Joint training programs and simulation exercises were planned. A binational action plan, including a monitoring mechanism, was adopted with clear timelines.

Conclusion: The Takoradi meeting demonstrated strong political commitment and set the stage for operationalizing cross-border health security. Institutionalizing the agreed mechanisms, supported by WAHO, will be critical for sustaining Mpox preparedness and response in the region.

Keywords: *Mpox, cross-border surveillance, Côte d'Ivoire, Ghana, One Health, IHR.*

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Oral 005

Apport de l'investigation Faunistique chez le cas index probable d'une flambee nosocomiale de Fievre Lassa a Conakry

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Introduction : La fièvre Lassa, infection à Arenavirus ayant pour réservoir le rat *Mastomys,* est endémique en Guinée. En Aout 2022 une flambée d'épidémie nosocomiale a éclaté à Conakry. Le cas index probable est décédé avant d'être prélevé. La présence de l'hôte réservoir étant un indicateur de la probabilité que les humains soient infectés, une investigation faunistique autour du cas index pour apporter des informations supplémentaires a été l'objet de ce travail.

Méthodes : ont été utilisées la collecte de rats avec les pièges chairman, la RT-PCR pour la détection du virus Lassa (Altona diagnostics) chez les malades et les rongeurs puis le séquençage à l'aide de la technologie MinION (Oxford Nanopore) avec une approche métagénomique en combinaison avec l'analyse bioinformatique.

Résultats : Le virus Lassa a été identifié comme agent causal de l'épidémie. Des 16 prélèvements réalisés des cas contacts et/ou suspects, 6 ont été positifs (37,5%). Tous les cas confirmés sont du personnel médical et des contacts du cas probable index. Les contrôles ont permis de noter la disparition de la virémie pour 1, 2 et 2 personnes aux semaines 1, 2 et 4 respectivement. L'investigation de la faune dans l'environnement immédiat du cas index Douako à Kouroussa a permis de détecter 4 souches du virus Lassa à partir des pools de 55 *Mastomys natalensis* (7,27%). Le séquençage a permis d'obtenir 4 séquences complètes des souches humaines et une séquence faunistique complète. Toutes les souches humaines et faunistique appartiennent à la ligné IV du virus Lassa. La séquence obtenue à partir du rat présente suffisamment de différences génomiques par rapport aux séquences des souches humaines.

Conclusion : l'investigation faunistique prouve un fort portage du virus Lassa chez le réservoir dans l'environnement du cas index probable, des perspectives d'études approfondies sont envisagées.

Mots clés : *Flambée, épidémie, fièvre Lassa, cas index, Guinée*

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Contact networks of small mammals highlight potential transmission foci of Lassa mammarenavirus

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Introduction: Lassa fever, caused by *Mammarenavirus lassaense* (LASV), is an endemic zoonosis in several West African countries. Human infections primarily arise from rodent-to-human transmission, with *Mastomys natalensis*, a synanthropic species, serving as the principal reservoir. In Sierra Leone, small-mammal communities vary across land use gradients, potentially shaping LASV transmission risk in human populations. However, the extent to which anthropogenic environments facilitate small-mammal interactions conducive to viral transmission remains poorly understood.

Methods: We conducted small-mammal sampling over 43,266 trap nights, detecting 684 rodents and shrews in the LASV-endemic Eastern Province of Sierra Leone. To assess potential for within- and between-species transmission, we constructed space-sharing networks based on co-trapping within species-specific radii informed by home range estimates. These networks approximated shared space use rather than direct interaction, allowing comparison of potential encounter patterns across habitats.

Results: Small-mammal communities in agricultural settings had greater species richness and were more connected than those in villages and forests, although overall space-sharing rates did not differ substantially. Network topology varied by land use, with greater modularity in village networks. Notably, space sharing among *M. natalensis* individuals was more frequent in agricultural settings than in villages, suggesting that land use may modulate opportunities for intra-specific viral transmission. LASV seroprevalence across the small-mammal community was 5.7%, with antibodies detected in nine species. We found no major differences in seroprevalence by land use or network complexity.

Conclusion: These findings underscore the importance of cross-habitat surveillance to understand host ecology and LASV transmission. Accounting for species-specific space use and habitat-dependent interaction structures is crucial for identifying key hosts and spillover settings.

Keywords: *Rodent associated zoonoses; Mastomys natalensis; Disease ecology; Transmission networks; Land use; Sierra Leone*

Knowledge of Lassa fever and Infection Prevention and Control Practices among Healthcare Workers in a North-central State, Nigeria

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Introduction: Healthcare associated infections of Lassa fever have been described in many West African countries. Studies in some states have shown poor knowledge and infection prevention and control practices among healthcare workers. This study assess the knowledge of Lassa fever and practices of infection prevention and control among healthcare workers in Benue state, Nigeria.

Methods: A cross-sectional study was conducted among 273 Health care workers in government healthcare facilities in Benue state using a multistage sampling technique. The respondents were interviewed using a pre-tested interviewer-administered semi-structured questionnaire. Descriptive and inferential statistics were performed at α=0.05.

Results: Majority, 177 (64.8%) of the respondents were female. The mean age of the respondents was 33.3 years (SD=10.0). Majority, [166 (60.8%)] work in tertiary health care facilities. Less than half, 124 (45.4%) have at least 10 years working experience. Most of the respondents, 206 (75.5%) had good knowledge of Lassa fever, and good IPC practices (82.4%).
Participants from tertiary health facilities were less likely of good IPC practices compared to those from primary health facilities (AOR=0.17, CI: 0.05, 0.53). Those with previous exposure to Lassa fever training were three times as likely of those with no prior training to have good IPC practices (AOR=3.03, CI: 1.04, 8.78). In terms of cadre, doctors (AOR=0.16, CI: 0.03, 0.79) and Pharmacists (AOR=0.10, CI: 0.02, 0.53) were less likely of good IPC practices compared to CHEWs.

Conclusion: Doctors were less likely of adhering to IPC practices than other HCWs across all the three levels of healthcare facilities. Similarly, all HCWs in tertiary healthcare facilities were less likely of adhering to IPC practices than their counterparts in secondary and primary healthcare facilities.
This negligence puts HCWs at risk of healthcare associated transmission of Lassa fever infection. Regular trainings on Lassa fever IPC protocols is recommended to enhance health outcomes.

Keywords: *Lassa fever, Infection prevention and control, Healthcare workers, Healthcare facilities, Healthcare associated infections.*

Abattoirs as Sentinel Sites for One Health Surveillance of Lassa Fever: A Literature Review from a West African Perspective

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Introduction: Lassa fever, an acute viral hemorrhagic illness endemic to West Africa, is driven by zoonotic spillover from *Mastomys natalensis*, often facilitated by human animal environment interactions in rural and peri urban settings. While early warning systems are vital for outbreak prevention, abattoirs remain underutilized despite being high risk interfaces where disease transmission and pathogen amplification may occur. This review explores the potential of abattoirs as sentinel sites for One Health based Lassa fever surveillance and early warning. The aim of this research is to review current literature on Lassa fever surveillance systems and assess the potential role of abattoirs as integrated One Health surveillance nodes in West Africa.

Methods: A scoping literature review was conducted using the Arksey and O'Malley framework. Databases searched included PubMed, Scopus, African Journals Online (AJOL), and grey literature from institutional repositories. Search terms included: "Lassa fever," "abattoir surveillance," "zoonotic disease," "One Health," and "West Africa." Studies published between 2019 and 2024 were included if they addressed surveillance, zoonotic transmission, or integrated health systems involving abattoirs.

Results: Out of 72 reviewed documents, only 6 (8.3%) referenced abattoirs in relation to Lassa fever or zoonotic surveillance. Most national surveillance frameworks lacked animal health environmental components at the slaughterhouse level. Rodent infestation and poor waste disposal practices were recurrent risk factors identified. Promising models from Nigeria and Ghana advocated for integrated data collection and intersectoral training.

Conclusion: Abattoirs present an overlooked opportunity for zoonotic surveillance in West Africa. Embedding One Health strategies into abattoir operations could strengthen early warning systems for Lassa fever and related zoonoses. Policy and operational reforms should prioritize abattoir-based sentinel surveillance to bridge animal human health gaps. Integrate abattoirs into national One Health surveillance frameworks. Train frontline workers, enhance cross sectoral data sharing, and implement routine zoonotic monitoring to strengthen early warning.

Keywords: *Lassa fever, abattoir surveillance, zoonotic disease, One Health, and West Africa.*

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Sero-Molecular and Vector Surveillance of Lassa, Dengue, and Yellow Fever Viruses in Oyo State, Nigeria: A One Health Approach

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Introduction: The world continues to face recurrent epidemics driven by arboviral and zoonotic pathogens, posing significant threats to global health. In Nigeria, underdiagnosis and misdiagnosis of viral haemorrhagic fevers (VHFs) are common due to weak surveillance systems, limited laboratory capacity, and poor health seeking behaviour. This study assessed the public health burden, vector abundance and climatic influences of Lassa fever virus (LASV), Dengue fever virus (DENV) and Yellow fever virus (YFV) infections in Oyo State, Nigeria.

Method: A cross-sectional study was conducted from January 2022 to April 2023. Blood samples from 289 febrile humans were screened for LASV, DENV, and YFV using RT qPCR and serological assays, including IgM/IgG ELISA and lateral flow immunoassay kits. A total of 1,015 Aedes mosquitoes were trapped using Biogent Sentinel trap from 10 high risk LGAs, preserved in RNA Shield, and tested for YFV and DENV using RT qPCR. Additionally, 30 rats were trapped in Iwajowa LGA following LASV confirmation, preserved and tested for LASV via RT PCR. Meteorological data were obtained from the Nigerian Meteorological Agency. Data were analyzed using descriptive statistics and multivariate models to explore associations between, infection, climate and vector dynamics.

Results: LASV IgM and IgG seroprevalence were 9.7% and 10.7%, respectively. DENV IgM and IgG seroprevalence were 6.6% and 37.7%. One individual tested positive for both LASV and DENV. Three LASV cases were confirmed by RT PCR in humans; no YFV or DENV RNA was detected in human or mosquito samples. Rodent samples tested negative for LASV. *Aedes aegypti* was the dominant species (79.5%) followed by *Aedes albopictus* and *Aedes simpsoni* with seasonal population variations linked to climate patterns.

Conclusion: The findings confirm ongoing LASV and DENV transmission and highlight the risk of arboviral outbreaks due to high vector abundance. Strengthened surveillance, accurate differential diagnosis and integrated vector control are urgently needed to mitigate potential outbreaks.

Keywords: *Viral haemorhagic fever, climate, one health, vector dynamics**, diagnostics*

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Oral 010

From Strategy to Solidarity: How Nigeria's 2025–2029 Plan Advances Leadership and Regional Collaboration for Lassa Fever in West Africa

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Introduction: Lassa fever (LF) poses persistent public health threat in West Africa. In Nigeria, it accounts for over 70% of the regional disease burden with increased frequency and geographic spread during seasonal outbreaks, overwhelming the health system. Despite growing response efforts, the absence of a national strategic plan in endemic countries has undermined long term sustainability. This abstract outlines the development and regional relevance of Nigeria's first comprehensive Lassa Fever Strategic Plan (2025–2029)

Methods: The NCDC through the National Lassa fever Technical Working Group (LFTWG) led a multi stakeholder One Health driven strategy development from 2018 to 2022. This included consultative meetings, workshops, and a final validation forum. Contributors involved focal persons drawn across 10 pillars of the LFTWG; high burden states; LGAs; treatment centres; LF diagnostic labs, state and federal ministries of health, agriculture and environment, academia and relevant departments and agencies.

Results: The strategy draws from 55+ years of surveillance data, reports from LF outbreaks in Nigeria and aligns with the WHO LF Research and Development (R&D) Roadmap (2019), the strategy aims to reduce Nigeria's LF CFR to below 10% by 2029 through 23 objectives across 10 pillars. Total budget is estimated at $76 million USD, with 52% allocated to the first two years and driven largely by logistics and supply chain needs (50%). Sustained funding depends on collective multisectoral collaboration, domestic resource mobilization, and public private partnerships, driven by country governance. Regional mechanisms, including joint rapid response teams (RRTs), surveillance harmonization, and pooled financing, are integral for successful implementation.

Conclusion: Nigeria's 2025–2029 Lassa Fever Strategic Plan offers a model for embedding epidemic preparedness into national health policy while fostering regional collaboration. Platforms such as the Lassa Fever Governing Entity and ECOWAS are essential for coordinating governance, funding, and programmatic delivery—ensuring more resilient, coordinated epidemic responses across West Africa.

Keywords: *Lassa Fever; Strategic Planning; One Health; Regional Cooperation; Viral Haemorrhagic Fevers; West Africa*

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Improved Lassa Fever Control in a Tertiary Health Facility, Nigeria: The Role of Partnership

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Introduction: Ebonyi State is one of the high-burden states with Lassa fever in Nigeria, and has recorded high healthcare worker infection/mortality. This study was conducted to identify the role of partnership in controlling the burden of Lassa fever in the study hospital.

Methods: Data were collected through retrospective record reviews and confidential inquiries from Alex Ekwueme Federal University Teaching Hospital, Abakaliki, Nigeria. Data from records were extracted using checklist. The checklist included number of Lassa fever-infected staff, cadre, year of diagnosis, and outcome of illness. Data from inquiries were collected through oral interviews with an interview guide. There was assessment of interventions and investments made by Ebonyi State Government, Nigeria Center for Disease Control (NCDC), and Médecins Sans Frontières (MSF) in specific areas of the hospital.

Results: From 2005 to May 2025, the hospital had recorded 68 cases and 17 deaths among its workforce. Following a rise in healthcare worker infection/mortality in 2018 (16 cases and 5 deaths), NCDC provided diagnostic and personal protective equipment. MSF improved IPC through establishment of standard triage system and flow for patients, provision of an incinerator and a system for better medical waste management for Lassa fever. MSF built a mini-morgue attached to the treatment centre to promptly isolate corpses of Lassa fever patients. Since the interventions of the NCDC and MSF began in 2018, between 2019 and May 2025, 13 cases and 4 deaths have been reported among the staff. However, MSF project ended in the hospital in 2024.

Conclusion: The study hospital has benefitted from interventions of partners in improving its IPC measures since 2018 through a reduction in morbidity/mortality from Lassa fever. This is a demonstration of the value of partnership in the control of Lassa fever. We request partners' support to improve gains achieved, especially with withdrawal of MSF support.

Keywords: *Lassa fever, Control, Healthcare workers, Partnership, Abakaliki, Nigeria*

Abstract ID: ELIC202590
Oral 012

Circulation of Lassa Virus in multimammate rats in northern Côte d'Ivoire

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Introduction: Lassa fever is a viral haemorrhagic illness endemic to West Africa, caused by Lassa virus (LASV), a zoonotic pathogen primarily maintained by *Mastomys natalensis*, a rodent widely distributed across Sub-Saharan Africa. While Lassa fever has been reported in countries such as Benin, Ghana, Guinea, Liberia, Mali, Sierra Leone, and Nigeria, genome sequences of LASV are not available from all regions. The virus may also be circulating undetected in countries with limited surveillance and diagnostic capabilities, including Côte d'Ivoire.

Methods: In a previous investigation, we detected LASV RNA in *M. natalensis* specimens collected in rural settlements in northern Côte d'Ivoire near the border with Mali. Building on these findings, we conducted an extended rodent sampling campaign in the same region from Korhogo to the border of Mali. Lung samples were screened for LASV, and positive samples were subjected to whole-genome sequencing for genetic characterization.

Results: We report the genomic characterization of thirteen LASV strains isolated from *M. natalensis* captured in northern Côte d'Ivoire. Phylogenetic analysis confirmed the presence of two genetically distinct LASV lineages, suggesting local viral evolution and sustained, previously undetected circulation in the region.

Conclusion: Our findings provide the first genomic data of LASV from Côte d'Ivoire and highlight the importance of continued and expanded surveillance in both rodent reservoirs and human populations. Enhanced genomic monitoring across West Africa is essential to elucidate the evolutionary dynamics, geographic spread, and potential public health threat posed by Lassa.

Keywords: *Lassa Virus, Mastomys natalensis, Côte d'Ivoire*

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Oral 013

Enhancing Preparedness, Readiness, and Response to Lassa Fever Outbreaks in Nigeria: Reflections from the 2023 Lassa Fever Outbreak After Action Review

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Introduction: Lassa fever is a zoonotic caused by an old world arenavirus, Lassa virus. Although, other rodents carry the virus, the multimammate Rat is the major reservoir and has been found to be abundant in endemic countries in West Africa. This study reviewed the Nigerian outbreak of 2023 to ensure no outbreak lessons goes to waste.

Methods: The 2023 Lassa fever outbreak was reviewed using the WHO working group After Action Review (AAR) toolkit. Within 6 weeks of de-escalation of the Emergency Operations Centre, the 2023 AAR was conducted between 31st July to 2nd August 2023 with a total of 40 participants drawn from; the State Ministries of Health of reporting states across the country, Nigeria Centre for Disease Control and Prevention, National Lassa Fever TWG, physicians from major treatment centres, and key partners. A qualitative and participatory approach using the standardized WHO framework and tools (WHO guide for AAR; facilitators and participants manual). The AAR focused on the 2024 LF outbreak response that occurred between January and July.

Results: A total of 75 activities were identified for immediate actions among which 50 key activities were prioritized to improve future Lassa fever outbreaks and other public health emergencies. Top prioritised activities included the need for a One Health implementation research, advocacy, enhanced surveillance and reporting, bolster risk communication/community engagements and increase the number of labs for Lassa fever diagnosis.

Conclusion: Although, the case fatality rate has been on the decline, it is still a far from the less than 10% national target. Thus, there is a need to ensure that all stakeholders across the human-animal-environment interface are actively involved in the control and management efforts of Lassa fever in, within and around the borders of Nigeria.

Keywords: *Lassa Fever, One Health, Preparedness, Response*

Land cover change and transmission of Lassa, Ebola and other zoonotic pathogens in Macenta, Guinea: integrating spatial and serological data to detect spillover risks

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Introduction: Guinea is an emerging economy where land use change through agricultural activities and hunting practices are widely acknowledged to be key drivers of disease emergence. Ecological mapping of Guinea places the forested region as hot spot for zoonotic pathogen transmission. To date, there is little actionable information on how land management and agricultural development strategies can reduce pandemic risks in low- and middle-income countries. Understanding where and when cross-species transmission events occur can provide new opportunities for emerging and re-emerging disease surveillance and inform the design of sustainable landscapes.

Methods: To investigate potential asymptomatic infections in the study zone, serum samples were collected from 517 healthy volunteers within 47 villages. We performed enzyme linked-immunosorbent assay (ELISA) and Western blot assays for antibody detection and a significant number of seropositivity were detected for Lassa, Ebola, Marburg and other pathogens. Alternatively, wildlife samples were collected and human movement pattern relative to landscape were considered to understand human interaction with wildlife through daily activities to define hotspots.

Results: Serum samples were processed using ELISA, western blot and multiplex beads array assay technics and show number of antibody response to Lassa virus, Ebolavirus, Marburg virus and SARS-COV-2-like virus. Additionally, bat faecal samples were screened using hemi-nested PCR and confirmed by metagenomic sequencing. Findings revealed different subtypes of Ebolavirus, bat coronaviruses, Henipa viruses, Morjiang virus, a SARS-COV-2-like virus and several novel coronaviruses. Finally, the human movement pattern relative to landscape data likely indicates hotspots where human and wildlife interactions occur.

Conclusion: This study was done in collaboration with the university of Oxford, UK. It intends to improve disease surveillance in Guinea and enhance the capacity of public health systems to detect, monitor, and respond to infectious diseases.

Keywords: *Arenavirus, Filovirus, Bushmeat hunters, hot spot, Landscape.*

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Oral 015

From Strategy to Impact: Insights from the ARC-WA Program on Advancing Regional Health Emergency Evidence Preparedness in Lassa-Endemic Settings

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Introduction: Recurrent Lassa fever outbreaks and other health emergencies continue to expose critical gaps in emergency response and evidence generation in West Africa. These challenges are particularly acute in Lassa-endemic countries, where fragile health systems, limited surge capacity, and under-resourced research infrastructure hinder timely decision-making. In response, the Coalition for Epidemic Preparedness Innovations (CEPI) launched the Advancing Research Capacity in West Africa (ARC- WA) program, with the International Vaccine Institute (IVI) and the Medical Research Council Unit, The Gambia (MRCG) as joint Technical Coordinating Partners (TCP).

Methods: ARC-WA aims to strengthen regional readiness for health emergencies, with a strong focus on Lassa-endemic contexts. Using a participatory, stepwise approach grounded in qualitative research, the program began with a stakeholder mapping and landscape assessment based on desk reviews and key informant interviews. This was followed by a consultative workshop in Dakar, Senegal (June 2024; 54 participants) to validate findings and refine engagement strategies. A second workshop in Accra, Ghana (late 2024; 120 participants) facilitated co-development of a regional vision and stakeholder plan.

Results: This process revealed six critical gaps: limited prioritization of national research preparedness agendas; weak coordination mechanisms; inadequate clinical research infrastructure; fragile regulatory and ethics systems; insufficient collaboration within and across borders; and chronic underfunding. Stakeholders identified practical strategies to address these challenges and accelerate progress toward a more cohesive, regionally owned emergency research agenda. By centering the needs of Lassa-endemic countries, ARC-WA sets a foundation for sustainable, locally led evidence generation.

Conclusion: The program illustrates how collaborative, context-aware initiatives can move from strategy to impact—building resilient systems that are better prepared for future health emergencies.

Keywords: *Lassa fever, Impact, Collaborative workshop, Research*

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Oral 016

Advancing implementation of One Health Approach in the ECOWAS Region: West African Health Organisation (WAHO) key achievements in the past three years.

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Introduction: The One Health (OH) approach is essential to addressing public health threats in the ECOWAS region, where human, animal, and environmental health are deeply interconnected. The West African Health Organisation (WAHO) has championed this integrated strategy. This study presents the key achievements recorded over the past three years.

Methods: A qualitative implementation study was conducted using data collected from 2022 to 2024. The study synthesizes outcomes from multiple regional and national activities, including strategy development, capacity building, and deployment of operational tools. Stakeholder discussions and workshops informed the findings. Narrative analysis was used to extract key achievements and lessons.

Results: A key milestone was the development of the ECOWAS OH Strategy (2025–2029) and Governance Manual, providing a framework for intersectoral coordination. Capacity-building efforts included the ECOWAS OH Leadership Course, implemented in collaboration with the University of Ghana and the Benin Regional Institute of Public Health, which trained 82 OH leaders. In addition, awareness courses targeted over 160 frontline professionals in Ghana, Guinea Bissau, and The Gambia. WAHO organized a Training of Trainers for the Tripartite Zoonoses Guide tools, including the Joint Risk Assessment (JRA OT) and the Surveillance and Information Sharing (SIS OT) and the Workforce Development (WFD OT) Operational Tools. WAHO conducted SIS OT implementation workshops in five ECOWAS countries: Mali, Guinea, Senegal, Nigeria, and Côte d'Ivoire between October 2023 and February 2025. The WFD OT was implemented in Côte d'Ivoire in November 2024. Despite these achievements, challenges persist in institutionalizing functional OH platforms, securing sustainable funding from governments and partners, and ensuring continued workforce development. Full operationalization of the Tripartite tools remains a priority.

Conclusion: WAHO has made significant strides in advancing OH in West Africa by building strategic frameworks, enhancing human resources, and deploying surveillance tools. Sustaining these gains will require strong political will, ongoing investment, and committed multisectoral collaboration.

Keywords: *One Health, West Africa, zoonotic diseases surveillance, intersectoral collaboration, WAHO.*

Assessing Lassa Virus Surveillance Disparities in West Africa Using Climatic Zone and Geographic Proximity Indicators

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Introduction: Lassa fever remains a persistent public health concern in West Africa, with Nigeria as its epicenter. While climatic and ecological conditions are known to influence rodent-borne transmission, neighboring countries with similar risk profiles often lack genomic surveillance data. This study presents a preliminary analysis of Lassa virus surveillance disparities across the region, exploring the role of climate zones, geographic proximity, and infrastructural gaps.

Methods: Metadata on Lassa virus genomic sequences were retrieved from the National Centre for Biotechnology Information (NCBI) Nucleotide database. Surveillance distribution across 16 West African countries was assessed against 2024 regional temperature variation data from Berkeley Earth. Countries were categorized based on shared climatic zones (Sahara, Sahel, Sudano-Sahelian, Guinea Coast) and proximity to known endemic areas.

Results: Preliminary findings show that only 5 of 16 countries (31.3%) which are; Nigeria, Guinea, Sierra Leone, Liberia, and Côte d'Ivoire, have submitted Lassa virus genomic data. Nine countries (56.3%) sharing border with endemic zones have no sequence submissions. Uniform regional temperature trends (mean variation = 1.5°C) were observed across all countries.

Conclusion: Countries with physical proximity to endemic zones but lacking genomic submissions may represent silent hotspots of Lassa virus. Surveillance disparities are not due to ecological unsuitability but likely inadequate facilities to conduct Lassa virus genomics surveillance. A novel idea of "WAVES Policy (West Africa Viral Early Surveillance Policy)" was proposed, which calls for regional genomic capacity strengthening, mandatory cross-border sequence virtual sharing for research purposes, and the deployment of mobile genomic units guided by climate and geography-informed risk models. Collaboration shall go a long way toward enabling West Africa put up a resilient fight against Lassa fever.

Keywords: *Lassa Fever, West Africa, Genomics, Regional Surveillance, Climatic Zones*

Abstract ID: ELIC2025156
Oral 018

Operational insights and lessons learned from coordinating the Nigeria Lassa Epidemiology (NiLE) study in Nigeria

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Introduction: The CEPI-funded Enable Lassa Research Programme is the largest Lassa fever epidemiological study across seven West African sites to aid vaccine development. In Nigeria, the NiLE study, coordinated by the Enable office at NCDC Abuja, enrolled over 7,000 participants across three sites. This abstract outline key operational challenges and lessons learned, offering insights to improve future large-scale research in similar low-resource settings.

Methods: NiLE study was a multi-site, prospective cohort study carried out in Edo, Ondo, and Ebonyi states between 2020 and 2023. Participants were followed for at least 24 months through active and passive surveillance to monitor Lassa fever symptoms, outcomes, and complications.

Results: Several operational challenges emerged. The COVID-19 pandemic caused significant delays in study initiation and participant enrollment. Mistrust and community hesitancy were heightened due to overlapping health crises, complicating engagement efforts. Effective collaboration with local health authorities proved essential but was not always seamless. Laboratory inconsistencies across sites made case confirmation difficult, while the lack of baseline audiometric data limited the assessment of hearing loss, a known Lassa fever complication. Despite these hurdles, key lessons were identified: the importance of adaptability during public health emergencies, the value of sustained community trust-building, the benefit of integrating local expertise for recruitment and retention, the necessity of standardized lab protocols, and the need for baseline audiometry in Lassa fever studies.

Conclusion: Coordinating a multi-site study in diverse Nigerian settings presents logistical and cultural challenges. However, with strategic planning, community engagement, and methodological rigor, such initiatives can succeed. The lessons learned from Enable 1.0 provide a framework for improving future research on Lassa fever and other infectious diseases across Nigeria and West Africa.

Keywords: *Lassa fever, Epidemiology, Lessons Learned, Research, Coordination.*

Renforcement de la surveillance transfrontalière du Mpox : Coopération entre la Côte d'Ivoire et le Libéria

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Introduction : Avec la recrudescence du Mpox en Afrique de l'Ouest, les zones frontalières entre la Côte d'Ivoire et le Libéria apparaissent comme des points critiques pour la prévention et la réponse rapide. En février 2025, la Côte d'Ivoire, avec le soutien de l'OOAS, a initié une rencontre bilatérale à San Pedro pour améliorer la coopération entre les deux pays en matière de surveillance du Mpox. Cette étude décrit les dynamiques de coopération sanitaire transfrontalière dans le cadre du Mpox, en identifiant les leviers et obstacles à une intégration régionale effective.

Méthodologie : Une étude qualitative exploratoire fondée sur l'analyse inductive, combinant groupes de discussion et revue documentaire a été utilisée. Quarante-deux participants des secteurs humain (22), animal (16) et environnemental (04) ont abordé les piliers de la riposte : coordination, surveillance, laboratoire, la gestion des cas, communication de risque et engagement communautaire. Les échanges ont permis une analyse comparative, la documentation de bonnes pratiques et l'élaboration de recommandations concrètes.

Résultats : L'atelier a révélé l'absence de cadre juridique formel de coopération sanitaire, aboutissant à la recommandation de développer un mémorandum d'entente. Le manque de partage d'informations en temps réel a suscité l'idée d'une plateforme numérique régionale. L'harmonisation des indicateurs de surveillance a également été identifiée comme une priorité. Des déficits en ressources humaines aux frontières ont justifié la planification de formations conjointes. Un plan d'action opérationnel a été validé avec un échéancier, posant les bases d'une coordination bilatérale renforcée.

Conclusion : Cette initiative a renforcé la confiance et ouvert la voie à une collaboration durable entre les deux pays. En cohérence avec le RSI (2005) et les orientations stratégiques de l'OOAS, ces initiatives constituent un modèle duplicable à l'échelle régionale. Leur succès dépendra de l'institutionnalisation des mécanismes créés et de l'engagement durable des États.

Mots clés : *Mpox, coopération transfrontalière, Côte d'Ivoire, Libéria, One Health, RSI*.

Cross-Border Collaboration in Action: A Laboratory-Confirmed Case Report of Lassa Fever in Kwara State, Nigeria

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Introduction: The porous nature of international borders has facilitated the spread of Lassa Fever (LF) cases, underscoring the need for cross-border management and collaboration. This case report highlights a laboratory-confirmed index case of LF in Kwara State, Nigeria, and demonstrates the importance of multisectoral collaboration in controlling outbreaks.

Case Report: A 30-year-old woman presented with fever, headache, and abdominal pain, and was initially treated for malaria. However, as her condition persisted, the Kwara State Ministry of Health was notified of a suspected LF case on February 13, 2020. Investigations revealed that the patient had visited healthcare facilities in both Kwara State, Nigeria, and the Republic of Benin during her illness. Blood samples were obtained, and she was confirmed positive for LF in the Republic of Benin.

Conclusion: This case highlights the challenges of LF diagnosis and the need for effective community engagement within the framework of the International Health Regulations. The confirmation of LF in this patient underscores the importance of cross-border collaboration in controlling outbreaks. By sharing information, coordinating responses, and engaging communities, countries can work together to prevent the spread of LF and reduce the risk of outbreaks. This case report emphasizes the need for enhanced surveillance, improved diagnostic capacity, and strengthened partnerships between healthcare systems across borders. By leveraging multisectoral collaboration and community engagement, we can improve our response to LF outbreaks and protect public health. This report serves as a timely reminder of the importance of global cooperation in the face of emerging and re-emerging infectious diseases.

Keywords: *Lassa fever, Cross-border collaboration, Surveillance, Outbreak response.*

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Oral 021

Enhancing Regional Collaboration for Disease Control in Nigeria

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Introduction: Nigeria continues to grapple with recurrent public health emergencies such as Lassa fever, cholera, and COVID-19. These outbreaks reveal persistent systemic weaknesses in coordination and response, particularly at regional levels. The need for integrated collaboration frameworks is urgent to enhance outbreak preparedness and mitigate future health crises.

Methods: A mixed-methods approach was employed, including desk review of outbreak reports, policies, and operational guidelines. Data were collected through focus group discussions, key informant interviews, and stakeholder consultations across Nigeria's six geopolitical zones. These engagements explored lived experiences, coordination structures, and challenges encountered during past outbreaks. Coordination mechanisms were analyzed to identify systemic gaps and opportunities for regional improvement.

Results: Findings highlighted poor inter-agency collaboration, fragmented response systems, weak surveillance data flows, and limited regional-level emergency preparedness. The analysis revealed duplication of efforts, communication gaps, and uncoordinated funding mechanisms among stakeholders.

Conclusion: A Regional Disease Control Coordination Model (RDCCM) was developed to promote integrated surveillance, interoperable data systems, shared simulation exercises, and unified resource mobilization. Institutionalizing such a model can foster efficient, timely, and sustainable responses to public health threats in Nigeria. Regional collaboration offers a scalable solution for strengthening national health security.

Keywords: *Regional Coordination, Public Health Emergencies, Surveillance, Nigeria, Disease Outbreak Response, Health Security*

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Oral 022

Safety and tolerability of dexamethasone combined with standard-of-care ribavirin for the treatment of Lassa Fever: An open label randomized controlled phase II clinical trial

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Introduction: Lassa fever (LF) can progress to severe disease resulting in high mortality. Ribavirin is the standard-of-care antiviral therapy. Dexamethasone, a corticosteroid, modulates inflammation-mediated tissue damage. It is hypothesized that its addition to ribavirin may enhance the effectiveness of LF treatment. This phase II clinical trial evaluated its safety and tolerability.

Methods: This prospective, open-label, randomized controlled phase II clinical trial conducted at a reference hospital in Nigeria assessed the safety and tolerability of adjunct dexamethasone combined with ribavirin compared to ribavirin alone for the treatment of LF. Hospitalized adult participants with PCR-confirmed LF were eligible (n=21 per arm). Safety data were collected over a 10-day follow-up period. Preliminary data will be presented.

Results: Recruitment began in February 2024. As of May 2025, 36 evaluable participants have been included, with 19 (53%) female and median age of 33.5 years (range 19–67). Among the 17 participants receiving ribavirin alone, 14 adverse events (AEs) were reported. Two were graded as severe, dyspnea and Lassa meningitis, both considered as complication of the disease and leading to participant withdrawal due to the need for concomitant steroid therapy. Additionally, one case of severe Lassa fever leading to death was reported as serious adverse event (SAE). Among the 19 participants receiving adjunct dexamethasone, 18 AEs were reported, mostly mild. No severe AEs or SAEs occurred. All participants in the dexamethasone arm completed the 10-day follow-up.

Conclusion: Preliminary findings suggest that adjunct dexamethasone therapy is safe and tolerable. The AE severity tended to be higher in the ribavirin-only arm. These events were attributed to LF progression, suggesting that dexamethasone may contribute to improved clinical outcomes. These results support the rationale for more extensive evaluation, potentially informing future treatment guidelines and expanding evidence-based options for LF management.

Keywords: *Lassa Fever, Viral Hemorrhagic Fever, Dexamethasone, Ribavirin, Phase II Clinical Trial*

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Oral 023

The INTEGRATE study: an adaptive platform trial for the development of new interventions to combat Lassa Fever in West Africa.

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Introduction: Lassa fever (LF) is a viral haemorrhagic fever responsible for thousands of deaths per year in West Africa, with in-hospital mortality at 12%. Ribavirin is the recommended treatment of LF. However, the absence of state-of-the-art intensive care, the questionable effectiveness and the important toxicity of Ribavirin, and the high burden of LF in West Africa call for novel drug therapies.

Methods: The INTEGRATE trial is a multinational, multicentre, controlled, randomized, adaptive phase II-III platform superiority trial with open-label parallel arms. The primary objective is to compare the efficacy of Investigational Medicinal Products (IMPs) regimen to Ribavirin on prevention of death or organ failure in hospitalized adult participants. Participants are hospitalized for at least 10 days, and followed for 28 days. The platform trial evaluates IMP regimen against Ribavirin in phase II and phase III, with adaptative design in phase II depending on the IMP type. The trial is sponsored by the Irrua Specialist Teaching Hospital (ISTH) in Nigeria, with INSERM ANRS MIE, France, as a co-sponsor.

Results: Enrollment has started in May 2025 at the Federal Medical Centre Owo, one of the largest LF treatment center in Nigeria. Next site opening to come will be at ISTH. Currently, the first IMP to be evaluated is the association of Dexamethasone and ribavirin for severe patients. Further recruiting sites across West-Africa (e.g., Liberia, Benin, Guinea, Nigeria) and further IMPs (e.g. favipiravir, ARN 75039) are planned to be added to the platform over the course of the trial. More than 500 participants are expected to join the trial over the coming years.

Conclusion: The ribavirin treatment for LF is still debated in term of safety, efficacy and affordability. The INTEGRATE study will provide critical evidence on the efficacy of novel therapies, with the goal of improving patient outcomes and alleviating the global burden of LF.

Keywords: *Lassa Virus; Clinical Research; Therapeutics; West Africa*

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Divergent Pathways of Severe Lassa Fever: Vascular Leak and Hyperinflammation versus Neurological Disease - Recommendation for Therapeutic Countermeasure from the PATHOGENESIS study

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Background: Lassa fever (LF) is a viral haemorrhagic fever (VHF) prevalent in West Africa with case fatalities rates in hospitalised patients ranging from 20-30 %. Previous studies have demonstrated acute kidney injury and encephalopathy as key symptoms associated with fatal outcome. Yet to date the underlying pathophysiology is poorly understood hampering the development of adequate medical countermeasures (MCM).

Methods: From January 2022 until December 2023, we recruited a prospective observational cohort of 329 adult Lassa fever patients at Irrua Specialist Teaching Hospital in Nigeria. Bidaily study visit included assessment of clinical exams and blood sampling. Patients were classified according to common outcome definitions. To decipher the pathogenesis of AKI and encephalopathy, patients with such diagnosis were recruited into sub-cohorts with additional focused assessments such as ultrasound, urinalysis, neurological exams and electroencephalography (EEG).

Results: The mean age of the cohort was 36.8 years and 42.7 % (137/321) were female. All patients were treated with Ribavirin and 48% also with Dexamethasone. The most common complications were acute kidney injury (AKI; 28% 96/342), hepatitis (23%, 79/342), and meningitis or focal neurological defect (8.5%, 29/342). AKI was mainly associated with hyperinflammation and a vascular leak syndrome. Fatal cases, compared with survivors, showed marked inflammation (CRP: 33 [10 - 71] vs. 98 [64 - 162], WBC: 6.7 [5.1 - 8.8] vs. 13.4 [8.9 - 25.2]) and, to a lesser extent, coagulopathy (INR: 1.07 [1.03 - 1.13] vs. 1.20 [1.05 - 1.28]). In neurologically impaired patients, distinct EEG patterns indicated viral meningitis.

Conclusion: Fatal cases exhibited a multi-organ failure syndrome hallmarked by hepatitis and AKI. This syndrome was associated with vascular leak and inflammation, rather than severe haemorrhage. A secondary phenotype (approx. 8.5%, 29/342) of patients had primarily neurological disease. We recommend that therapeutic approaches also target vascular leak and inflammation and address neuroinvasive infection.

Keywords: *Neurological disorder, Lassa fever sequelae, Ribavirin*

Predictive value of the Modified Early Warning Score for mortality and Intensive Care Unit admission in Lassa fever patients: a retrospective analysis

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Introduction: Early identification of clinical deterioration in Lassa fever is critical for improving patient outcomes. The Modified Early Warning Score (MEWS) is a simple bedside tool based on physiological parameters. This study evaluated the predictive value of MEWS for mortality and ICU admission among patients with Lassa fever.

Methods: We conducted a retrospective analysis of 128 patients admitted with confirmed Lassa fever between March 2023 and February 2024. MEWS was computed from recorded vital signs at admission. Receiver Operating Characteristic (ROC) analysis was used to determine optimal cut-off values for predicting in-hospital mortality and ICU admission. Logistic regression models were applied to assess the association between categorized MEWS and clinical outcomes.

Results: The MEWS ranged from 0 to 10 with a median of 2 and an interquartile range of 1-3.5. During admission, 12 patients (9.4%) died, and 19 (14.8%) required ICU admission. For mortality, the optimal MEWS threshold was ≥ 3, yielding a sensitivity of 75% and specificity of 80%. The area under the ROC curve (AUC) was 0.81 (95%CI: 0.66–0.96). Logistic regression showed a significant association between elevated MEWS and mortality. Patients with MEWS ≥ 3 had nearly 10 times the odds of dying compared to those with MEWS <3 (OR=9.9; 95%CI: 2.1–47.3; p=0.004). For ICU admission, the optimal MEWS threshold was ≥ 2 (sensitivity:68%, specificity:67%), with an AUC of 0.70 (95%CI: 0.58–0.82). The association between MEWS ≥ 2 and ICU admission was borderline significant (OR=3.1; 95%CI: 1.0–9.8; p=0.060).

Conclusion: MEWS at admission may be useful for identifying Lassa fever patients at higher risk of mortality. A threshold of ≥ 3 was predictive of in-hospital death. Its utility for predicting ICU admission is less clear and requires further validation. Integrating MEWS into routine triage protocols may aid early risk stratification and improve clinical decision-making.

Keywords: *MEWS, ISTH, Lassa fever, Nursing.*

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Oral 026

Safety and tolerability of favipiravir compared to ribavirin for the treatment of Lassa fever: A randomized controlled open-label phase II clinical trial

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Introduction: The Lassa virus (LV) causes Lassa fever (LF), a severe re-emerging disease. It affects several West African nations, with Nigeria having the greatest case burden. Currently, only supportive care and ribavirin are available for treatment. There is, however, little evidence on the efficacy of ribavirin in LF. Recent research found that *in vivo* plasma concentrations are likely insufficient for antiviral effects. Thus, new LF medicines are urgently required. Favipiravir, a broad-spectrum antiviral for pandemic influenza, has also being tested for other viruses. It is effective against LV in pre-clinical trials. The aim of this clinical trial was to evaluate the safety, tolerability and pharmacokinetics of repurposed favipiravir for LF.

Methods: LF patients (hospitalized and PCR confirmed) were recruited to this randomized controlled open-label phase II clinical trial in Nigeria's Irrua Specialist Teaching Hospital and Federal Medical Centre Owo, the world's biggest LF treatment centres. Patients were randomized in a 1:1 ratio to I.V ribavirin and oral favipiravir. Clinical assessments including ECG, and blood sampling for pharmacokinetics (PK) as well as virological, serological, immunological, haematological, biochemistry analyses were done during screening and thereafter until day 10.

Results: Between August 2021 and October 2022, 41 LF patients were randomized in the study. 36 participants completed follow-up. Treatment Emergent Adverse Events occurred on 16/20 (80%) on favipiravir and 14/21 (66.7%) on ribavirin and were similarly distributed between treatment arms. No severe or serious adverse events were observed under favipiravir. One life-threatening event occurred with ribavirin. PK analysis of favipiravir showed reliable exposure with maximum plasma concentration of 50.9 mg/L in steady state, half-life of 10.9 hours, and AUC$_{(0-240h)}$ of 9275mg/L*h.

Conclusion: These first clinical trial data on the safety, tolerability and pharmacokinetics of favipiravir as a treatment candidate for LF indicate good safety and tolerability. Further investigation into larger trials is underway.

Keywords: *Favipiravir, Ribavirin, Lassa fever, Nigeria*

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Oral 027

A Promising Therapeutic Approach for Post-Lassa Fever Sensorineural Hearing Loss

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Introduction: Post-Lassa fever sensorineural hearing loss (SNHL) is a debilitating complication affecting over 35% of survivors, with limited understanding of its pathophysiology and management. Despite its clinical importance, evidence-based therapeutic approaches for post-Lassa fever SNHL remain scarce.

Method: A 13-year-old girl with profound unilateral SNHL in the right ear following Lassa fever recovery, confirmed by clinical examinations, including voice and Weber tests as there was no audiometric service at presentation. An evidence-based therapeutic regimen was initiated, including I.V mannitol (2g/kg 12hourly administered over 30minutes for 24 hours), I.V hydrocortisone (2mg/kg 12 hourly for 24 hours), oral betahistine (8mg 12 hourly) to enhance inner ear circulation and neurovite (1 tablet 12 hourly) to support nerve regeneration.

Results: Within 16 hours of treatment, the patient demonstrated significant improvement, responding to loud voice in the affected ear. Post-treatment KuduWave pure-tone audiometry (PTA) showed improvement, with pure tone average of 102dB. However, the patient reported persistent tinnitus and hyperacusis, suggesting residual nerve irritation or acoustic trauma which resolved 2 weeks after discharge. The rapid response to mannitol and hydrocortisone supports the hypothesis that inflammation and endolymphatic hydrops may play a critical role in post-Lassa fever SNHL. Betahistine and neurovite contributed to inner ear circulation and nerve recovery respectively. Patient was discharged on prednisolone (0.5mg/kg twice daily) after 24 hours, to continue betahistine and neurovite as initially prescribed at admission. Repeat PTA average at one week showed increased pure tone average in the left (47dB) and reduced pure tone average in the affected ear (80dB). One month follow up were 43dB in the left and 57dB in the affected ear.

Conclusions: The findings suggest that inflammation and fluid dynamics are key mechanisms in this condition. This approach warrants further investigation through randomized controlled trials to establish its efficacy and applicability in broader populations.

Keywords: *Lassa fever, hearing loss, audiometry, viral hemorrhagic fever, sensorineural*

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Oral 028

Early Dialysis and Innovations for Better Outcome in Lassa Fever Patients with Acute Kidney Injury.

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Introduction: Acute kidney injury (AKI) is recognized complication of Lassa fever (LF) and is associated with poor outcomes. To improve prognosis, Irrua Specialist Teaching Hospital (ISTH) implemented a multifaceted approach in the management of patients with AKI. This included reduction in the threshold for Hemodialysis (HD), cautious use of heparin and pre-dialysis optimization of patient's status by transfusion with blood transfusion and blood products, inotropic support, correction of dehydration and hypoglycemia, appropriate catheter use. This study reviewed the outcome of critically ill LF patients with AKI who had Hemodialysis during the 2023 outbreak at ISTH.

Method: This was a retrospective observational study. The demographic, clinical and laboratory data of 19 critically ill LF patients diagnosed with AKI during the January to May 2023 outbreak were extracted from medical records and analyzed using IBM SPSS version 21.

Result: A total of 19 patients with mean age 44.2±14.8 years met the criteria for HD. Majority (68.0%) were males. A total of 70 HD sessions were performed with an average of 3.69 session per patient. Four patients (21.1%) presented late and received only one session of HD with 100% mortality. Fifteen patients (78.9%) received two or more sessions HD with three mortalities (15.7%). Disequilibrium syndrome and bleeding diathesis were observed in two patients (10.5%). There was no incidence of deep vein thrombosis.

Conclusion: Early initiation of HD in LF-associated AKI appeared to improve survival. Factors contributing to poor outcomes included delayed presentation, intradialysis complications and multi-organ failure. Caution in the use of heparin, and careful catheter selection may contribute to favorable outcomes observed during the outbreak.

Keywords: *Lassa fever, Hemodialysis, Acute Kidney Injury.*

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Oral 029

Genetic Diversity and Population Structure of Mpox Virus in Africa: Identifying Key Targets for Vaccine Development

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Introduction: Mpox (formerly Monkeypox) is fatal disease that is endemic in Africa, with pandemic potential. However, the genetic diversity/evolutionary patterns of Mpox virus remain underexplored. This study aimed to decipher the population genetic structure of Mpox virus and identify key virulence markers with potential as vaccine targets in Africa.

Methods: High-quality, near-full-length Mpox genome sequences of African origin (1970 – 2024; $N = 251$) were retrieved from Nextstrain and NCBI Virus databases between December, 2024 and February, 2025 (Cameroon, $n = 11$; Central African Republic, $n = 45$; Côte d'Ivoire, $n = 1$; Democratic Republic of Congo, $n = 54$; Egypt, $n = 1$; Gabon, $n = 2$; Kenya, $n = 1$; Liberia, $n = 2$; Nigeria, $n = 122$, Sierra Leone, $n = 1$; South Africa, $n = 9$; and Sudan, $n = 2$), and analyzed using high-throughput bioinformatics pipelines to determine nucleotide diversity, reassortments, phylodynamics, and conservation of key vaccine targets.

Results: Among the 944 identified mutations, 935 were polymorphic sites (singleton sites: $n = 477$; parsimony-informative sites: $n = 458$), forming 179 haplotypes with a haplotype diversity (Hd) of 0.9954 and nucleotide diversity (Pi) of 0.00232. Additionally, 55 (12.9%) indel haplotypes were identified (indel diversity = 0.775; p < 0.001). The genomes belonged to clades Ia (37.8%), Ib (4.8%), IIa (1.6%), and IIb (55.8%), exhibiting significant intra-clade nucleotide variation and high inter-clade diversity. Furthermore, 34 recombination events were identified across the 251 sequences. Notably, the conservation rates of virulent genes encoding membrane (E8L, H3L, M1R) and envelope (B6R, A35R) proteins were 0% for E8L, H3L, and B6R, and 32.3% and 97.6% for A35R and M1R, respectively.

Conclusion: This study provides the first population genetic analysis of Mpox virus and highlights the M1R protein as a putative target for a potential cross-protective vaccine candidate against Mpox in Africa.

Keywords: *Mpox, Genetic Diversity, Virulence, Vaccine, Africa*

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Oral 030

Bridging the Gaps: A Scoping Review of Lassa Fever Vaccine Research in Sub-Saharan Africa

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Introduction: Sub-Saharan Africa continues to face Lassa fever as a major public health issue due to its high morbidity and mortality in endemic countries such as Nigeria, Sierra Leone, and Liberia. Even with decades of research, there is no licensed Lassa fever vaccine for human use. The purpose of this scoping review was to examine Lassa fever vaccine research across sub-Saharan Africa to identify existing knowledge gaps and determine future research priorities.

Methods: We performed a scoping review that was based on Arksey and O'Malley's framework. The research included English-language studies from PubMed, Scopus, and Web of Science published between 2000 and 2024. The search terms Lassa fever, vaccine, Lassa virus, and sub-Saharan Africa guided the selection of studies, which included preclinical and clinical vaccine trials as well as immunological and policy research. Data were extracted and organized to reveal key findings according to research focus, country of origin, and development stage.

Results: Out of 107 studies identified, only 32 fulfilled the inclusion criteria. Majority of the studies were preclinical studies, while clinical trial phases I and II were very few. There was no study on phase III trial. The majority of studies were in Nigeria and Sierra Leone and they showed significant gaps in vaccine acceptance and community engagement. There was scarce collaboration between local institutions and global partners which frequently obstructed translational research advancement.

Conclusion: Vaccine development for Lassa fever throughout sub-Saharan Africa is still at its primary stages despite significant progress. Immediate funding is essential for advancing clinical trials and creating both effective policies and community readiness plans. Stronger regional research capacity alongside collaboration and continuous global funding will be necessary to fill these existing gaps.

Keywords: *Lassa fever, vaccine development, sub-Saharan Africa, viral haemorrhagic fever, scoping review, immunization policy.*

Charting a Course for Lassa Fever Vaccine Development: Early Lessons from Nigeria

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Introduction: Lassa fever is a persistent threat to public health in West Africa, where Nigeria accounts for most confirmed cases and deaths annually. Without a licensed vaccine and very limited medical countermeasures, case fatality rates remain unacceptably high. In response to this urgent gap, the Nigerian Federal Ministry of Health established the **Task Team on Effective Vaccines for Lassa Fever in Nigeria** in 2023 with the mandate of devising a structured approach to guide the national effort. This study presents early insights from its first year of operations and lessons learned from implementing a country-led coordination mechanism for Lassa fever vaccine development.

Methods: A descriptive analysis of the task force implementation process was conducted using internal records, progress reports, and strategic planning documents. Supplementary semi-structured interviews were conducted with stakeholders representing regulatory bodies, research institutions, public health agencies, and global partners.

Results: Within its first year, the task force developed a work plan, mapped research institutions and laboratories for clinical trial readiness, initiated regulatory consultations, and established partnerships with global actors such as CEPI and IAVI. Its progress has been aided by high-level political commitment, inclusive representation, and strategic alignment with national health security goals.

Conclusion: Nigeria's experience demonstrates the value of institutionalized national coordination mechanisms in advancing vaccine R&D for epidemic-prone diseases. The **Task Team on Effective Vaccine for Lassa Fever in Nigeria** has successfully established foundational structures for Lassa fever vaccine development and offers a replicable governance model for other endemic countries.

Keywords: *Lassa Fever, Vaccines, Public Health Administration, Research Design, Stakeholder Participation*

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Oral 032

BIOINFORMATICS DESIGNING OF AN mRNA VACCINE FOR MOKOLAVIRUS (MOKV) USING IMMUNOINFORMATICS AS A SECURE STRATEGY FOR SUCCESSFUL VACCINE DEVELOPMENT

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Introduction: The Mokola Virus belongs to the family Rhabdoviridae and is genotype 3 of the Lyssavirus genera. A small number of cases of animal and human encephalomyelitis, mainly scattered over sub-Saharan Africa, have been linked to the Mokola Virus (MOKV). Currently there is no vaccine to protect against MOKV infection in people or animals. It has been proven that rabies vaccination does not confer immunity against MOKV infection, even though MOKV and the rabies virus are related.

Methods: Using immunoinformatics approaches, this study designed an mRNA vaccine that can protect against all the five glycoproteins of the Mokola virus. NCBI was used to obtain the viral sequences, which were then screened for antigenicity, allergenicity, toxicity, B-cell epitopes, CD8+T lymphocytes (CTL), and CD4+T lymphocytes (HTL). These epitopes were used in the construction of the vaccine. Some extra co-translational residues were added to the mRNA vaccine construct.

Results: Its molecular weight is 129.19083 kDa, and its estimated pI is 8.58. It interacts rather steadily and with limited deformability with TLR 3, among other human innate immune receptors.

Conclusion: Overall, the results show that the produced candidate vaccine is non-allergen, non-toxic, and can elicit T–cell and B–cell immune responses. These findings can further be subjected to in-vivo and in-vitro techniques for validation.

Keywords: *Immunoinformatics, Vaccination, Mokola, CD8+T lymphocytes, CD4+T lymphocytes*

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Oral 033

Expanding clinical trial access through a mobile clinical trials unit to strengthen epidemic preparedness in rural and underserved communities in Nigeria

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Introduction: In rural Nigeria, communities often lack access to clinical trial infrastructure. This limits their access to innovation and participation in research, thus weakening preparedness for epidemics. Ensuring equitable access to trials builds trust, supports early detection, and promotes inclusive outbreak response. To bridge this gap, we developed a Mobile Clinical Trials Unit (CTU) to bring vaccine and infectious disease research directly to underserved areas.

Methods: The mobile CTU is part of a wider capacity-strengthening initiative funded by the Coalition for Epidemic Preparedness Innovations (CEPI) and delivered by the Medical Research Council Unit The Gambia and the International Vaccine Institute. Built from a modified 20-foot container mounted on a flatbed truck, the unit houses dedicated spaces for laboratory work, pharmacy services, and clinical consultations. It is equipped with solar panels, water storage, refrigeration, ultra-low temperature freezers, and a mobile community engagement area. Field visits and input from local stakeholders guided the design and planning process.

Results: The mobile CTU is designed for rapid deployment to hard-to-reach areas. It will increase recruitment reach, improve trial participation, and allow for on-site data and sample collection. The design enables decentralized trial delivery and strengthens public health response capacity in emergencies. Initial feedback indicates strong local interest and opportunities for collaboration across sectors.

Conclusion: This mobile CTU model provides a flexible and scalable approach to overcoming infrastructural and geographic barriers to research. It enhances epidemic preparedness by enabling remote communities to participate in trials and gain access to timely medical innovations. The model has strong potential for replication in other resource-constrained settings.

Keywords: *Clinical trials, mobile unit, rural access, epidemic preparedness, decentralized research*

Establishing an External Quality Assurance (EQA) System for Lassa Fever Testing in Nigeria

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Introduction: Lassa fever is a viral hemorrhagic disease endemic in West Africa, capable of progressing from mild illness to multiorgan failure. During the 2018 outbreak in Nigeria, 423 confirmed cases were recorded with a case fatality rate of 25%. Given the absence of commercial diagnostic assays for Lassa virus, ensuring test accuracy through quality assurance systems is critical. External Quality Assurance (EQA) programs serve to evaluate and enhance the reliability of laboratory diagnostics by providing standardized, blinded testing materials.

Methods: An EQA program was initiated using Lassa fever-positive samples with known cycle threshold (CT) values. These samples were pooled, heat-inactivated, blinded, and distributed to all active testing laboratories. Laboratories conducted testing according to their routine procedures. Concordance between expected and reported results was used to evaluate test performance.

Results: In the first round, 16 panels were distributed and 13 tested, yielding a 92% concordance rate. In the second round, all 15 distributed panels were tested, achieving a 100% concordance rate. These results indicate both progress in testing quality and the responsiveness of labs to continuous performance monitoring.

Conclusion: The EQA system has proven effective in benchmarking diagnostic quality and identifying areas for capacity strengthening. Annual implementation of this program will support ongoing quality improvement, guide targeted training interventions, and serve as a tool to evaluate the readiness of new laboratories for Lassa fever testing.

Keywords: *External quality assurance, Lassa fever, Diagnostic accuracy, Laboratory quality, Nigeria, CT values*

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Oral 035

Establishing Target Product Profiles for Lassa Fever Diagnostics: A Collaborative Approach to Guide Innovation and Public Health Investment

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Introduction: Lassa fever (Lf), a viral hemorrhagic illness endemic to parts of West Africa, presents a significant public health challenge due to its nonspecific clinical presentation and lack of widely accessible diagnostic tools. Despite its threat, no standardized Target Product Profiles (TPPs) currently exist to guide the development of diagnostic assays for Lf. This gap hampers product development, regulatory evaluation, and procurement planning. This initiative, FIND-led was aimed at establishing TPPs for Lf diagnostic tools to inform the development and implementation of diagnostics for Lf.

Methods: A structured, multi-stakeholder process was employed to draft and finalize the Lf TPPs. A core writing team from FIND led the drafting process in collaboration with a broader TPP Development Group composed of technical experts in diagnostics, clinical management, and outbreak response, as well as representatives from civil society organizations. The process included a Welphi survey, a structured communication technique used to achieve consensus through multiple rounds of feedback. The draft TPPs specified intended use cases, target populations, and diagnostic parameters categorized as "Minimal" and "Optimal". Attention was given to key diagnostic settings, including point-of-care, near-patient, and reference laboratory environments.

Results: Two distinct TPPs were developed: one for screening/diagnostic use, aiming to enable isolation and treatment during the same clinical encounter, and another for confirmatory testing, intended for use at reference laboratories. These TPPs address performance metrics, operational considerations, and pricing thresholds. Consensus across stakeholders was achieved through the collaborative Welphi process. Modelling was performed to validate performance thresholds and support prioritization of test attributes.

Conclusion: The development of TPPS for Lf diagnostics is a pivotal step toward improving outbreak preparedness and routine disease management in endemic regions. By setting clear and realistic expectations for diagnostic development, the TPPs will catalyze innovation, streamline regulatory approval, and guide procurement decisions.

Keywords: *Lassa fever, diagnostics, Target product profile, Welphi.*

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Oral 036

Assessment of Challenges Healthcare Providers Face When Communicating Delayed Laboratory Results to Patients Managed for Lassa Fever in Benue State, Nigeria

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Introduction: Providing results to individuals diagnosed with Lassa fever is an ethical obligation that enhances patients' confidence and commitment to their treatment. It also fosters trust in the community regarding management practices, improves treatment outcomes, and strengthens responses to outbreaks. However, fulfilling this obligation can be complex, particularly when some patients and their families perceive the results negatively. This study examined healthcare providers' experiences with the challenges they encounter when communicating delayed positive results to suspected Lassa fever patients admitted to the Benue State University Teaching Hospital (BSUTH) in Makurdi, Nigeria.

Methods: A cross-sectional descriptive study and Key informant interviews were conducted to gather insights from 15 healthcare providers at a Lassa fever treatment center, BSUTH Makurdi, between January and December 2024. This period was marked by active surveillance of the disease and a significant increase in the number of patients treated. The healthcare providers shared their experiences and stories, which were organized and presented in narrative form.

Results: The patient's duration of admission ranges from 1 to 25 days, with an average of 8 (±3.5) days. The average turnaround time from blood sample collection to testing and result release was 6 (±2) days. The challenges faced by the healthcare providers included a lack of trust in the results, patients' denial of diagnoses, failure to provide detailed information about contacts, emotional blackmail, mistrust, ethical dilemmas, physical assaults, and emotional abuses, which are obstacles to maintaining ongoing surveillance.

Conclusion: The increased time to process specimens and the delayed communication of results for Lassa fever diagnosis have a significant negative impact on healthcare providers. These further create notable gaps in the surveillance and referral pathways for managing clinical cases. Therefore, it is essential to establish molecular laboratories at all treatment centers to ensure a quick turnaround for results.

Keywords: *Challenges, Lassa fever, Communicating delayed Results, Healthcare Providers, Benue-Nigeria*

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Oral 037

Guinea's five-year progress in Lassa fever surveillance: strengthening diagnostic and genomic surveillance capabilities.

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Introduction: Viral hemorrhagic fevers (VHFs) remain a persistent public health concern, especially in resource limited settings. The 2014–2016 Ebola outbreak highlighted the need to strengthen laboratory preparedness and diagnostic capacity in endemic areas. In response, a long-term laboratory capacity building program was initiated in Guinea to enhance the country's ability to timely detect and respond to VHF outbreaks, including Lassa fever.

Methods: Since 2016, our program has focused on improving infrastructure, training local laboratory personnel, and providing VHF diagnostics support, including Lassa fever. This enabled the setup (Gueckédou), and strengthening of existing capacities (Conakry and N'Zérékoré), creating a network of three VHF diagnostic laboratories in Guinea, two in the Forest region. Molecular testing by RT-PCR (altona Diagnostics), serological assays, and nanopore sequencing (Oxford Nanopore Technologies), were set up.

Results: Systematic testing enabled the detection of VHFs in Guinea, particularly in Forest Guinea. Over 20 laboratory staff were trained in advanced diagnostic procedures across the three laboratories. A total of 34 Lassa fever cases have been identified across the three laboratories, all between 2020 and 2024. In country genomic surveillance capacity permitted the characterization of Lassa viruses as subclusters of lineage IV. Case fatality rate was 59%, with approximately one third of patients receiving ribavirin treatment. Notably, 82% of Lassa fever cases were detected in the Forest region, although a nosocomial outbreak was identified in Conakry in 2022. The two new serology units in Gueckédou and N'Zérékoré allowed seroprevalence research in Forest Guinea, revealing widespread Lassa virus circulation in the region.

Conclusion: This study presents a comprehensive overview of the Lassa fever cases detected within the network of the three VHFs labs in Guinea since 2017. The strengthened diagnostic infrastructure and local workforce has improved outbreak detection, providing valuable insights into Lassa fever epidemiology and guiding future prevention strategies.

Keywords: *Lassa fever, Molecular diagnostics, Surveillance, Laboratory capacity*

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Oral 038

Le virus Lassa au Bénin : caractérisation génomique des isolats des cas positifs responsables de l'épidémie de 2023

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Introduction : Endémique dans certaines parties de l'Afrique de l'Ouest, la fièvre Lassa est une zoonose associée à une maladie hémorragique aiguë et causée par le virus Lassa avec plusieurs décès annuellement dans cette partie de l'Afrique. Contrairement aux épidémies des années antérieures qui apparaissent en saison sèche, le Bénin a connu en pleine saison pluvieuse (Août - septembre) de l'année 2023 plusieurs cas de fièvres hémorragiques à virus Lassa en milieu hospitalier dans les villes de Parakou et de Boko au Nord-Est du pays. Face une telle résurgence en pleinement saison pluvieuse, la présence étude s'est intéressée à la caractérisation génomique des isolats des cas positifs pour une meilleure compréhension épidémiologique.de cette fièvre

Méthodes : Les échantillons diagnostiqués positifs à partir du kit Altona 2. 0 au Laboratoire de Référence des Fièvres hémorragiques Virales du Bénin (LFHV) ont été conservés à -20 degrés pour le séquençage à l'Institut de Recherche Clinique du Bénin (IRCB). Les librairies étaient préparées sur la plate-forme Illumina (ISEQ100) et l'enrichissement viral s'est fait par sondes (comprehensive viral panel, Twist Bioscience) à l'IRCB et au LFHV. Un pipeline bioinformatique, GeVarLi, a été utilisé pour le contrôle de qualité, le filtre, l'alignement et l'assignation des virales. Les nouvelles séquences sont alignées avec les séquences de références humaines disponible dans la genbank pour les analyses phylogénétique (PhyML).

Résultats : Sur un total de 30 cas suspects en provenance du Nord Bénin pendant la saison pluvieuse, 7 cas ont été diagnostiqués positifs et tous étaient de long (L) fragment du virus Lassa. Les résultats de séquençage révèlent des génomes complets pour le virus Lassa, et les analyses phylogénétiques montrent que ces génomes sont étroitement en lien avec les précédentes souches de lignée VII de Lassa isolées au Bénin

Conclusion : Les résultats de ce travail de séquençage montrent que le Bénin à son propre réservoir du virus Lassa. Il urge à cet effet que les autorités sanitaires mettent l'accent sur la surveillance sanitaire de cette fièvre afin d'anticiper les épidémies.

Mots-clés : Souche, Lassa, Caractérisation, Bénin

Strengthening Clinical Trial Capacity for Epidemic Preparedness in West Africa: The ARC-WA Project

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Introduction: Lassa fever remains a significant public health threat in West Africa. Effective epidemic preparedness requires a robust clinical trial infrastructure capable of conducting GCP-compliant vaccine trials. The Advancing Research Capacity in West Africa (ARC-WA) project, funded by CEPI, aims to strengthen regional capacity for a future Phase 3 Lassa fever vaccine efficacy trial and support long-term research readiness across the region.

Methods: Led by a technical coordinating partnership between the International Vaccine Institute (IVI) and the Medical Research Council, The Gambia (MRCG), and supported by MMARCRO, BNITM, and a consortium management group with regional expertise, the ARC-WA project has been ongoing since January 2024 and is implemented through two tracks.
Track A focuses on site-level capacity strengthening. Six clinical trial sites in Nigeria, Liberia, and Sierra Leone are receiving tailored support in infrastructure upgrades, the development of quality management systems and Standard Operating Procedures (SOPs), and comprehensive staff training in clinical operations, laboratory systems, data management, finance, and regulatory management.
Track B promotes broader regional preparedness through stakeholder mapping, regional consultations, and workshops to identify gaps and define actions that enable sustainable epidemic response capabilities.

Results: To date, 35 sites across five countries (Nigeria, Liberia, Sierra Leone, Guinea and Benin) have been assessed for readiness. Under Track A, targeted improvements are ongoing at six sites, focusing on operational readiness for GCP-compliant trials. Track B activities have fostered national ownership and regional collaboration by engaging local stakeholders in priority-setting and planning.

Conclusion: The ARC-WA project is laying the groundwork for effective clinical trial implementation and long-term epidemic preparedness in West Africa. Through a dual-track approach, it addresses immediate site-level needs while advancing regional systems to support a coordinated response to future outbreaks.

Keywords: *Lassa fever, Clinical trial capacity, Epidemic preparedness, West Africa, Vaccine trials*

Challenges of Conducting Longitudinal Studies with Blood Draws in Low-Resource Settings: Lessons from the ENABLE 1.0 Lassa Fever Epidemiological Study in Edo State, Nigeria.

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Introduction: Longitudinal studies requiring repeated blood collection pose numerous challenges. These challenges include participant attrition, logistical difficulties in sample storage and transport, and cultural concerns surrounding blood collection. From December 2020 to June 2023, Nigeria participated in the multi-country ENABLE 1.0 Lassa fever (LF) cohort study, investigating the incidence and prevalence of LF. This paper outlines the operational challenges encountered and mitigation strategies adopted during the study at Irrua Specialist Teaching Hospital (ISTH), Edo State.

Methods: A total of 5,035 and 1,133 consenting participants from seven clusters were enrolled into disease and infection cohorts of the study and followed up through alternate home visits and calls biweekly for 30 months, with semi-annual sampling for seroconversion applied to the infection cohort. Febrile participants were sampled in designated health facilities. Diagnostic testing for LF and treatment of confirmed participants took place at ISTH. The communities were fed back on study findings at the study closure.

Results: Sample transportation from some clusters was hindered by poor road conditions, limited local transport, and rising petrol costs. Mitigation strategies included a hub-and-spoke transport model, batch scheduling of collections, coordinated travel to conserve petrol, and reallocation of resources. Participant fatigue and other concerns, including discomfort with repeated symptom checks and fear of blood collection, were addressed through trust-based communication, engagement of community liaison officers, phlebotomist trainings, and modest incentives. Attrition resulted from relocation, death, and refusals. The latter was mitigated through flexible follow-up, collection of collateral contact information, and sustained community engagement to dispel rumours and cultural misconceptions.

Conclusion: The ENABLE 1.0 study experienced operational challenges that were mitigated by adaptable context-specific strategies. Future research in the West African Sub-Region should prioritise consistent community engagement, culturally sensitive communication, flexible operational planning, and the active involvement of local stakeholders to ensure successful study implementation.

Keywords: *Blood sampling, Cohort study, Lassa fever, Longitudinal studies.*

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Is Lassa Fever Research and Development (R&D) at Risk? A Global Funding Analysis from the G-FINDER project

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Introduction: Lassa fever poses significant health and economic impacts in Africa. However, there remains no approved vaccine. Rapid diagnostics and broad-spectrum therapeutics are needed. R&D efforts have accelerated but face growing threats due to shrinking donor funding and shifting donor priorities. The Lassa fever coalition seeks to foster African-led R&D, underscoring the need for a comprehensive understanding of the current funding landscape. This study examines global R&D investments for Lassa fever, contextualized with the R&D pipeline, to inform investment priorities and support policy toward achieving the coalition's mission.

Methods: Leveraging the G-FINDER project, investment data from funders, intermediaries, and product developers (2015-2023) was analysed. Active pipeline candidates were identified from major pipeline data sources including clinical trial databases. Analysis was performed in Microsoft Excel by product type, R&D stage, and funder.

Results: Global funding for Lassa fever R&D totalled $449m between 2015-2023, with over half ($227m, 51%) directed towards vaccines. The US NIH was the largest funder, contributing $223m (50%) primarily for basic research ($102m, 46%). CEPI provided $171m (38%), focused almost entirely on clinical vaccine development. Nearly all funding came from high-income countries, particularly the US government ($234m, 52%). The current pipeline has 46 candidates - 16 vaccines, 9 drugs and 13 diagnostics, including two rapid tests in late development. Most vaccine candidates are viral vectors, with three in clinical trials, including the leading phase II candidate that meets the WHO target product profile. Biologics are predominantly monoclonal antibodies in preclinical development.

Conclusion: Lassa fever R&D funders are few and heavily reliant on the US government, a concerning vulnerability amid shifting donor priorities. While vaccine R&D has advanced, most countermeasures remain in early development. Urgent efforts to diversify funding and increasing domestic investment are essential. Without this, the opportunity to deliver effective countermeasures against Lassa fever risks being missed.

Keywords: *Research and Development (R&D); Innovation financing; pipeline, R&D policy; sustainable funding*

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Oral 042

Post-Mortem Pathological Insights into Lassa Fever via Minimally Invasive Tissue Sampling: A Comparative Study in a West African Endemic Region.

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Introduction: Lassa fever is a life-threatening viral hemorrhagic illness endemic to Nigeria and other parts of West Africa with thousands of deaths annually. Despite extensive research on its epidemiology and transmission, its tissue pathology, tropism and lethal pathway remain poorly understood due to the biosafety-risks associated with conventional autopsies. Minimally Invasive Tissue Sampling (MITS) offers a safer and culturally more acceptable alternative for post-mortem investigation, preserving body integrity while enabling detailed tissue analysis. This study aims to characterize the pathology and pathogenesis of Lassa fever through MITS and to compare findings with non-Lassa control cases.

Methods: This descriptive observational, ethically approved study is being conducted in Nigeria among deceased patients with confirmed Lassa fever, alongside non-Lassa controls. Eligibility is determined by clinical or laboratory confirmation of Lassa virus infection prior to death. MITS involves ultrasonographic evaluation of intra-abdominal and intrathoracic organs, followed by tissue biopsies using Tru-Cut needles. Tissue samples are analysed through histology, immunohistochemistry (IHC), and molecular techniques. From 2022 to date, 27 MITS procedures have been completed: 22 fatal Lassa fever cases and 5 controls.

Results: Preliminary findings from the 22 Lassa fever cases revealed relevant fluid accumulation in the pericardial, pleural, and peritoneal cavities by ultrasound. Jaundice was frequently observed (65%). Lassa virus was identified by immunohistochemistry in all examined organs, with the liver exhibiting the highest density and the kidneys the lowest. Microscopic analysis of the liver samples showed tissue necrosis and spots of inflammation, which does not with observed clinical manifestations and previously reported pathology. The kidneys showed no microscopic damage with rather low viral presence in the majority of cases, despite acute kidney injury diagnosed clinically. In one patient, we identified presence of Lassa virus in the brain. However, inter-patient variability exists.

Conclusion: MITS proves to be a valuable, safe and culturally acceptable tool for post-mortem investigation of viral hemorrhagic fevers such as Lassa fever. In this study, MITS showed distinctive changes to the liver but no

relevant damage to the kidneys. This may indicate the liver as a focus site of Lassa fever replication and pathology, while laboratory-proven kidney involvement may be linked to inflammatory cytokines rather than direct viral injury. Further research is needed to assess the role of Lassa virus as a neuroinvasive infection These findings can support future diagnostic and therapeutic strategies and integrate MITS into outbreak response and disease surveillance efforts in resource-limited settings.

Keywords: *Lassa fever, Minimally Invasive Tissue Sampling, Pathology, Post-mortem, Viral hemorrhagic fever.*

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Epidemiological insight into the pattern of Lassa fever in Ondo State from January 2022 to February 2025

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Introduction: Lassa fever (LF) remains endemic in several West African countries and contributes substantially to annual morbidity and mortality. Nigeria bears one of the highest burdens of the disease in the region, with 645 confirmed cases and 118 deaths reported between January and March 2025. This study aims to describe the pattern of LF cases in Ondo State, Nigeria, from 2022 to 2025.

Method: A secondary analysis of 8036 suspected LF cases recorded in Ondo State from January 2022 to February 2025 was conducted. The dataset was obtained from the Ondo State Ministry of Health disease registry. Only confirmed cases were included in the analysis. Data was analysed using R programming software version 4.3.3 and SPSS version 26. Descriptive statistics, including frequencies and percentages, were carried out, while the Chi-square test was used to test for significant differences in the death and case counts across the years at $p < 0.05$.

Results: Preliminary results showed that 1387 confirmed cases with 189 deaths (case fatality ratio (CFR): 13.63%) were recorded from January 2022 to February 2025. The highest number of confirmed cases, 446 (32.16%), was recorded in 2023, while 120 (8.65%) confirmed cases were recorded between January and February 2025. The highest CFR 67 (16.38%) was recorded in 2022, while the lowest was 48 (11.65%) in 2024. The CFR for 2022 was significantly higher than in 2023, 2024, and 2025.

Conclusion: The declining CFR is suggestive of progress in the management of LF cases in Ondo State. However, the high number of cases recorded within the first two months of 2025 is alarming. This trend may reflect enhanced surveillance efforts or the emergence of a more virulent strain of LF virus in the region. Further analysis is ongoing to have a better insight into the underlying factors contributing to this surge.

Keywords: *Lassa fever, case fatality rate, cases, Ondo State, disease.*

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Oral 044

From Lessons to Action: Stakeholders' Insights from Past Interventions in Lassa Fever outbreak in Ebonyi State Nigeria for Improved Public Health Outcomes.

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Introduction: Lassa fever remains a significant public health concern, especially in West Africa, where it is endemic. Nigeria continues to experience recurrent outbreaks, resulting in high morbidity and mortality. Evaluating past outbreaks is crucial to identify effective intervention strategies and existing gaps. This study assessed the effectiveness of previous interventions, community awareness, and engagement in infection prevention and control during the most recent Lassa fever outbreak in Ebonyi State.

Methods: This descriptive cross-sectional study involved 305 stakeholders across 13 Local Government Areas (LGAs) in Ebonyi State, using a mixed-methods approach. Data were collected through interviewer-administered questionnaires and key informant interviews. Quantitative data were analyzed using SPSS version 23, while thematic content analysis was applied to qualitative data. Means and standard deviations summarized continuous variables, and frequencies and proportions described categorical variables. Associations between variables were tested using Chi-square, with statistical significance set at $p \leq 0.05$.

Results: Most stakeholders were aware of Lassa fever symptoms, primarily through media sources. Notably, 61.3% participated in Lassa fever prevention programs, supported by qualitative findings which identified community health education and vector control as the most effective strategies. About 34.1% considered the outbreak's impact to be very serious, while 58.0% expressed low confidence in the health system's response capacity. Among healthcare providers, 11.5% cited a low index of suspicion as a gap in case management. Additionally, 33.8% emphasized the role of health education in community engagement and raising awareness.

Conclusion: Although stakeholders are aware of effective intervention strategies, a lack of confidence in the health system's preparedness could undermine future responses. Strengthening health education, environmental sanitation, and healthcare capacity is essential to improve outbreak preparedness and response.

Keywords: *Lessons to action, Stakeholder insight, Lassa fever outbreak, intervention strategies, Ebonyi State.*

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Oral 045

Lessons learnt from the 2023 Lassa Fever Outbreak in an Endemic Nigerian State: A World Health Organisation-Guided After-Action Review Process

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Introduction: Recurrent Lassa fever outbreaks persist in Nigeria, particularly in endemic states. In the aftermath of the response to the 2023 Lassa fever outbreak in Edo State, a multi-agency After-Action Review (AAR) was conducted to assess response activities, identify gaps, best practices, and strengthen future outbreak preparedness. The study's objective was to document lessons learnt from the 2023 Lassa fever outbreak response in Edo State, Nigeria.

Methods: A descriptive qualitative design was employed for this study. It involved a one-day AAR workshop held in June 2023 in Benin City, Edo State, Nigeria. Eighty participants were purposively selected. They included Rapid Response Teams (RRTs) from Local Government Areas (LGAs), public health professionals from the state and national levels, and partner organisations. Seven response pillars participated in group discussions and plenary sessions while RRTs from high-burden LGAs presented their response activities. All sessions were guided by the World Health Organisation AAR debrief approach. Real time data was collected, followed by thematic analysis and stakeholder validation. Since the AAR was a standard practice in public health, ethical approval was not needed.

Results: The AAR showed strengths in prompt activation and coordination of the Public Health Emergency Operation Centre, and partner engagement. A significant best practice was the strategic empowerment and deployment of the LGA RRTs in high-burden areas, which enhanced rapid case detection, decentralised contact tracing, and improved response time to evacuate cases for isolation and treatment. Gaps comprised inadequate IPC supplies at peripheral facilities and issues with risk communication in rural areas.

Conclusion: The study underscores the role of LGA RRT in containing the 2023 Lassa fever outbreak in Edo State. Further strengthening of these teams can help preparedness and response of future outbreaks.

Keywords: *Lassa Fever, Public Health, Nigeria, Local Government, Disease Outbreaks*

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Presentation and Outcome of Neonatal Lassa Virus Disease in endemic areas of Nigeria: A report from Irrua Specialist Teaching Hospital

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Introduction: Neonatal Lassa Virus disease (NNLVD) is highly fatal and could be difficult to differentiate clinically from other agents of neonatal sepsis. It could also occur as a co-infection. This scenario plus the paucity of published reports compounds the difficulties in the care of febrile newborn babies in endemic areas. We report our experience from the management of a cohort of 27 babies to further create awareness and enhance the availability of data to guide preventive strategies, diagnosis and clinical care.

Methods: Descriptive observational study of the clinical presentation and outcomes of 27 babies with NNLVD treated at the Neonatal Unit of ISTH from January 2021 to November 2024. The diagnosis of LVD was confirmed using Lassa virus reverse transcriptase polymerase chain reaction (LASV-RT-PCR) test. We classified the babies into in-born versus out-born and survived versus died and compared presenting features between them using chi square or Fisher exact test, with p <0.05 taken as significant.

Results: 27 (1.6%) of 1,678 SCBU admissions during the period had LVD. There was history of maternal LVD in 12/27 and maternal death in 3/27 while 6/11 babies had concomitant bacteraemia. Overall, 17/27 (63.0%) babies with LVD versus 253/1,651 (15.3%) with other morbidities died (OR = 9.39 (4.25, 20.75), p<0.001) while 2 (20%) of the 10 survivors had developmental delays. Swelling of the body and/or bull neck, bleeding, bacteraemia and AKI on presentation were the principal risk factors that increased case fatality.

Conclusion: NNLVD readily mimics bacterial sepsis in its presentation, is an important cause of neonatal mortality in endemic areas, and body swelling and bleeding on presentation are pointers to high case fatality. All febrile babies in endemic areas should be tested for LVD to reduce the risk of missed diagnosis.

Keywords: *Neonatal Lassa virus disease, Neonatal mortality and morbidity; Outcome; Presentation; Severe manifestations.*

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Case Report: Prolonged Proteinuria in a Young Healthy Male Treated for Lassa fever Complicated by Acute Kidney Disease.

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Introduction: An 18yr old male who was infected with Lassa fever (LF) and complicated by Acute kidney injury (AKI) and massive proteinuria with reversal of albumin-globulin ratio in the acute phase of the illness. He presented with oliguria, generalized body swelling and uraemia. There was no previous risk factor for kidney disease. He recovered from the Lassa fever infection and renal failure but continued to have proteinuria for six months after discharge. LF patients who recovered from AKI were previously believed to be without any adverse sequelae and long duration follow up and long term follow was not a routine practice. The index patient had five sessions of hemodialysis and received human albumin transfusion for severe hypoalbuminaemia. He made a complete clinical recovery and followed up.

Methods: The patient was followed up weekly for an initial two months period and subsequently twice monthly. Serum electrolytes and albumin was measured as well. Urinalysis was done on every clinic visit. Angiotensin receptor blocker, losartan at 25mg daily and gradually titrated to 100mg daily commenced on second month of follow up. Haematinics and dietary modifications were instituted.

Results; at first month of follow-up, the patient was found to have massive proteinuria and normal electrolytes. At three months, proteinuria persisted. There was observable decline in protein urine protein loss at 6months with complete resolution at 8months.

Conclusion: Patients with Lassa fever especially when complicated with AKI must be followed up for at least one year. Sustained proteinuria if not recognized may lead to further kidney damage and contribute to incidence of chronic kidney disease in the community.

Keywords: *Lassa fever, Acute Kidney Injury, Proteinuria.*

Clinical and paraclinical correlates of severe Lassa fever: First Results of the Irrua Lassa Fever SEPSIS Study

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Background: Lassa fever (LF) is a severe zoonotic disease endemic to West Africa, with Nigeria experiencing annual outbreaks. Clinical presentation ranges from asymptomatic to severe illness, with case fatality rates exceeding 20% in hospitalized patients. Hemorrhage is uncommon, and the actual clinical pathophysiology is poorly understood. The SEPSIS study investigates whether LF triggers a hyperinflammatory response, either directly or via secondary bacterial infections, to guide therapy.

Methods: Since January 2024, adult RT-PCR–confirmed LF cases have been recruited at Irrua Specialist Teaching Hospital (ISTH), Nigeria. Bidaily study visits include clinical assessments and laboratory investigations for inflammatory and bleeding markers. Blood cultures are also obtained and analyzed if positive. Here, we present a preliminary analysis of the clinical and paraclinical outcomes of SEPSIS study patients with severe LF admitted to the intensive care unit at ISTH.

Results: As of 17 January 2025, 34(27%) enrolled patients were admitted to the ICU and included in this preliminary analysis. Mean age was 44(±16) years; 65% were male. Patients had symptoms for 12.4(±5.4) days before admission. Case fatality rate was 44%(n=15). Ribavirin was administered to 33 patients; 27 also received dexamethasone. Supportive care included transfusions(n=16), hemodialysis(n=17), and oxygen(n=23). AKI was observed in 82%; bleeding, neurological symptoms, and severe anemia were common. Inflammatory markers were markedly elevated (mean CRP:140 vs 77mg/L; mean WBC:27 vs 11 103/mm3 in fatal vs non-fatal). Sepsis biomarkers (IL-6, PCT) also showed a pronounced elevation correlating with severity. Blood cultures were positive in 10 of 28 ICU patients; Staphylococcus spp., E. coli, Acinetobacter baumannii and other pathogens were detected.

Conclusion: Severe LF cases treated at the ISTH ICU showed hyperinflammation, organ dysfunction, and frequent secondary bacterial infections, sometimes with (multi-)drug-resistant pathogens. We recommend increased efforts for the development of host-directed, anti-inflammatory therapy, in addition to evaluation and treatment of secondary infections.

Keywords: *Lassa fever, pathophysiology, hyperinflammation, bleeding, secondary bacterial infection*

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Lassa Fever in Pregnancy: Outcomes and Management Approaches at ISTH

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Introduction: Lassa fever in Pregnancy is associated with high maternal and perinatal mortality. Despite WHO prioritization of Lassa fever for therapeutic and vaccine development in 2018, pregnant women are often excluded from trials due to ethical concerns on safety and limited preclinical safety data. This creates a critical evidence gap. In the absence of clinical data, management relies on expert opinion from endemic regions, forming the basis of National and WHO guidelines. Documenting these experiences is essential to guide future research and trial design. This study presents outcomes and management strategies for Lassa fever in pregnancy at Irrua Specialist Teaching Hospital (ISTH) during the 2023/2024 epidemic.

Methods: A retrospective descriptive review of maternal and perinatal outcomes among pregnant women with PCR-confirmed Lassa fever admitted to ISTH between January 1 and December 31st 2024.

Results: Out of 236 admitted patients, seven were pregnant. Mothers mean age was 30.1 ± 6.2 years and median parity three. Two patients presented in postpartum period and one presented at 6 weeks while four presented between 22 and 29 weeks. All patients had Fever. 28% had bleeding while 42.9% had "breast signs" (Pain& engorgement). Other common symptoms included headache, weakness, cough, abdominal pain and vomiting. All patients received ribavirin injection and broadspectrum antibiotic. Dexamethasone was given for fetal lung maturity and intensive maternal-fetal monitoring was done for all patients with viable fetuses. Five patients received blood transfusions. All seven mothers survived, two patients with non-viable fetuses underwent timely evacuation. Three women delivered live babies with one preterm infant experiencing early neonatal death. The two postpartum babies survived.

Conclusions: While Maternal outcomes were favorable, the small sample limits interpretation. Perinatal mortality remains significant despite intensive management. The role of ribavirin and the potential benefit of dexamethasone warrant further evaluation. Anemia and blood loss led to high transfusion rate.

Keywords: *Viral Haemorrhagic fever; Lassa fever; Ribavirin; Pregnancy Outcom*

Malaria and Lassa fever co-endemicity in Northeastern Nigeria: Insights from a retrospective study of febrile illnesses.

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Introduction: Lassa fever and malaria are endemic in Nigeria and often present with overlapping clinical symptoms, complicating the timely diagnosis and management of febrile illnesses-potentially contributing to adverse outcomes. Despite this clinical overlap, the burden and impact of malaria among individuals evaluated for Lassa fever remain poorly characterised, particularly in Northeastern Nigeria. This study aimed to determine the prevalence and clinical implications of malaria parasitaemia among individuals with suspected Lassa fever, including both PCR-positive and PCR-negative cases.

Methods: A retrospective cross-sectional study was conducted using line-listed data from suspected Lassa fever cases managed at Abubakar Tafawa Balewa University Teaching Hospital (ATBUTH) Bauchi between November 2024 and May 2025. Patients who underwent both Lassa PCR testing and malaria testing were included. Data on Lassa Fever PCR and malaria testing result were extracted from medical records. Descriptive statistics were used to estimate malaria burden, while Chi-square tests and logistic regression analyses assessed the association between malaria-Lassa co-infection and clinical outcomes, including mortality and length of hospital stay (<10 days vs >10 days).

Results: Of 1,764 individuals evaluated for Lassa fever, 437 (24.8%) were PCR-positive, and 1,327 (75.1%) were PCR-negative. Malaria testing was performed in 641 individuals (36.3%), and 11.4% of Lassa fever PCR-negative individuals had malaria. Among the 135 Lassa fever PCR-positive patients who had malaria test results, 27 (20.0%) were co-infected with malaria. Lassa fever–malaria co-infection showed no statistically significant association with mortality ($p = 0.27$; OR: 0.31, 95% CI: 0.04–2.48) or prolonged hospitalisation ($p = 0.54$; OR: 1.31, 95% CI: 0.55–3.12).

Conclusion: This study reveals a higher prevalence of malaria parasitaemia among Lassa fever PCR-positive cases (20.0%) compared to PCR-negative cases (11.4%) among individuals evaluated for Lassa fever, suggesting that malaria–Lassa co-infection, though not significantly associated with mortality or prolonged hospital stay, is not uncommon. These findings underscore the clinical complexity of managing febrile illnesses in co-endemic regions, such as Northeastern Nigeria. Routine dual testing for both malaria and Lassa fever in suspected cases is essential to improve diagnostic accuracy, prevent misclassification, and ensure timely and appropriate treatment, ultimately strengthening health system responsiveness in endemic settings.

Keywords: *Malaria, Lassa fever, co-infection, febrile illness, differential diagnosis, Nigeria*

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Prevention and Control (IPC) during Lassa Fever Outbreaks Through Behavior Change: An Analysis of Healthcare Worker Infections in Nigeria Using NCDC Situation Reports

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Introduction: Lassa fever (LF) is a viral hemorrhagic illness endemic in Nigeria, with seasonal peaks during the dry season. Despite investments in national guidelines and strengthened infection prevention and control (IPC) measures, healthcare worker (HCW) infections remain a recurrent issue during outbreaks. These infections hinder care delivery, reduce public trust, and reflect structural gaps in IPC implementation, although the guidelines mandate screening areas, immediate isolation, unidirectional flow systems, and barrier nursing protocols, PPE use, hand hygiene, and disinfectants. Persistent HCW infections underscore the need to address HCW behavior in addition to enforcing IPC guidelines. This study examines the association between HCW infections, case fatality rates (CFR), and the overall LF burden to better understand factors influencing outbreak severity and health system weaknesses.

Methods: Weekly Situation Reports (SitReps) from the Nigeria Centre for Disease Control (NCDC), covering April 2024 to April 2025, were reviewed. The study examined the relationship between HCW infections (HCI) and epidemiological indicators such as CFR, suspected and confirmed cases, and deaths. Data were analyzed by epidemiological week (EPI_WEEK) using chi-square and logistic linear regression.

Results: Chi-square tests showed a significant association between HCI as an outcome variable and EPI_WEEK, CFR_WEEK, and CFR_WEEK (p = .03). In addition, the multivariate logistic regression analysis revealed significant association across these variables (p = .002). These findings highlight the association of HCW infections and epidemiological patterns and outcomes of LF response, with emphasis on enhanced, IPC-focused strategies.
Conclusion: The study highlights a significant need for tailored IPC interventions using behavior change strategies. Applying an intervention mapping approach to address healthcare workers' behavior and promote strict adherence to IPC guidelines is essential. This approach is vital to protect health workers during and outside of outbreaks, ensure health system resilience, and improve overall outbreak response outcomes.

Keywords: *Lassa fever, Health worker, Infection Prevention, Infection Control, Behavior change*

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Fréquence des cas confirmés de la Fièvre Lassa en Guinée : Aspects sociodémographique, clinique et thérapeutique

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Introduction : Cette étude avait pour objectif de décrire les caractéristiques sociodémographique, clinique et thérapeutique des cas confirmés de fièvre Lassa en Guinée.

Méthode : Il s'agit d'une étude rétrospective descriptive, conduite du 12 février au 30 avril 2025 dans huit régions administratives de la Guinée. Les données, couvrant la période de 2021 à 2025, ont été collectées auprès des personnels des structures sanitaires impliquées. Une analyse descriptive a été réalisée sur l'ensemble des cas confirmés.

Résultats : Parmi les 119 cas suspects recensés, 17 ont été confirmés en laboratoire, soit un taux de positivité de 14,29 %. La répartition annuelle des cas confirmés montre une prédominance en 2022 (47,06 %), suivie de 2021 (23,53 %), 2024 (17,65 %) et 2025 (11,76 %). Les cas provenaient principalement des régions de N'Zérékoré (52,94 %), Conakry (41,18 %) et Kindia (5,88 %). Sur le plan sociodémographique, une légère prédominance féminine a été observée (52,94 %), soit un sex-ratio F/H de 1,12. L'âge moyen des patients confirmés était de 34,58 ± 15,26 ans. Les agents de santé représentaient la catégorie professionnelle la plus affectée (52,94 %), suivis des ouvriers (17,65 %) et des cultivateurs (11,76 %). Cliniquement, 94 % des cas présentaient une forme modérée de la maladie à l'admission, tandis que 6 % présentaient une forme grave. Les principaux signes cliniques rapportés étaient l'asthénie (82,35 %), la fièvre (64,71 %), la dyspnée (64,71 %), la diarrhée (64,71 %), la surdité (47,06 %), les douleurs (35,29 %) et les saignements (23,53 %). Sur le plan thérapeutique, tous les patients confirmés ont reçu un traitement à base de ribavirine (100 %).

Conclusion : La fièvre Lassa demeure une menace en Guinée, nécessitant un renforcement des mesures de prévention et de sensibilisation.

Mots clés : *Confirmés, Lassa, clinique, Thérapeutique*

Impact of Optimized Haemodialysis on the Outcome of Acute Kidney Injury in Lassa Fever: A study at Irrua Specialist Teaching Hospital, Nigeria

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Introduction: Our after-action review of the 2023 outbreak enabled us to further identify the significant contributors to mortality. Based on this, we effected a number of changes in case management during the outbreak of 2024. This was anchored on optimization of the management of patients with severe acute kidney injury (AKI) and included enhanced access to dialysis, early initiation of haemodialysis, adoption of heparin-free dialysis for high-risk patients, use of flexible double-lumen femoral catheter, and albumin-augmentation in hypoalbuminemic patients. We report here the changes in outcomes due to these interventions during the 2024 outbreak.

Methods: We compared the indices of overall case fatality rate (CFR) among patients with LF in 2023 vs 2024 outbreaks, the contribution of severe AKI to case fatality in 2023 vs 2024 and CFR among patients with severe AKI in 2023 vs 2024. We compared the rates between the two outbreak seasons using using $\chi2$ or Fisher exact tests as appropriate with p <0.05 set as the level of significance for differences between the two outbreaks.

Results: The overall case fatality in 2024 vs 2023 was 23/261 vs 38/319 (OR (95% CI) = 0.71 (0.41, 1.23), p = 0.226) and severe AKI rates 30/261 vs 31/319 (OR (95% CI) = 1.21 (0.71, 2.05), p = 0.488). The case fatality among patients with severe AKI who had haemodialysis was 20/30 vs 6/31 (OR (95% CI) = 2.08 (0.65, 6.72), p = 0.215) while the contribution of AKI to case fatality in 2024 vs 2023 was 20/23 (87%) vs 25/38 (66%) (OR (95% CI) = 3.47 (0.87, 13.87), p = 0.069).

Conclusion: We did not find any significant relationship between the optimization of haemodialysis and case fatality but the impact could be of clinical significance. We recommend further evaluation of the impact of optimized haemodialysis.

Keywords: *Lassa fever, Irrua Specialist Teaching Hospital, Institute of Viral and Emergent Pathogens Control and Research, Isolation ward, Optimization of haemodialysis*

A Place for Lumbar Punctures in the Standard of Care of Neonates with Suspected Sepsis in Lassa Virus Disease Endemic Areas – The ISTH experience

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Introduction: The diagnosis of neonatal Lassa virus disease (NNLVD) is usually made from RT-PCR testing of cord blood or baby's serum but this could lead to missed diagnosis where CSF examination is not part of the standard of care. Besides, the place of diagnostic LPs in neonatal care is topical. There is also a dearth of data on the presentation of NNLVD, an important cause of newborn morbidity and mortality in endemic countries. We sought to determine the need for diagnostic LPs in the clinical care of acutely ill newborn babies in endemic areas as a means of reducing the risk of missed diagnosis.

Methods: We reviewed the diagnosis and outcome of 27 babies hospitalized with LVD between January 2021 and December 2024 at the neonatal units of ISTH. The diagnosis of LVD was confirmed using LASV-RT-PCR test. We assessed the relationship between the risk of missed diagnosis and clinical presentation and virus load on presentation using odds ratios (95% confidence intervals, OR (95% CIs). We also compared groups using χ2 or Fisher exact tests and ANOVA, with $p < 0.05$ taken as significant.

Results: 3/13 (23%) babies with serum/CSF LASV-RT-PCR test results had negative serum/positive CSF. The risk of missed diagnosis was not significantly associated with demographic ($p > 0.05$) and clinical features on presentation ($p > 0.05$) and viral load ($p > 0.05$) but was accentuated among babies with bacteremia (3/6 bacteraemic vs 0/5 non-bacteremic babies; $p = 0.242$).

Conclusion: The risk of missed diagnosis is high in the absence of CSF examination in acutely ill babies but is unrelated to clinical presentation and viral load. We recommend that LP should be part of the standard of care of ill babies in Lassa-endemic areas to reduce the risk of missed diagnosis with its potentially serious consequences.

Keywords: *Missed diagnosis; Neonatal Lassa virus disease; Neonatal mortality and morbidity; Diagnostic lumbar puncture.*

Lassa Fever-Yellow Fever Coinfection in Southeastern Nigeria: A Dual Epidemic Challenge

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Introduction: Lassa fever (LF) and yellow fever (YF) remain a significant public health risk in Nigeria, where outbreaks frequently occur and limited healthcare resources complicate disease management. LF spreads through rodents, while YF is mosquito-borne, making coinfections particularly challenging to diagnose and treat. Weak healthcare infrastructure, poor access to diagnostic tools, scarce antiviral treatments, and vaccine hesitancy worsen the situation. Effective management requires rapid detection, improved clinical care, and stronger public health strategies. This case report highlights the complexities and successful management of co-infection with LF and YF in a frontline healthcare worker and the urgent need for strengthened healthcare systems.

Method: This case report examines a confirmed LF/YF coinfection in a tertiary healthcare facility in Southeastern Nigeria. Diagnosis was confirmed via real-time polymerase chain reaction (RT-PCR). Clinical symptoms, treatment approaches, and epidemiological impact were evaluated. Supportive care and interventions were documented. Findings highlight diagnostic challenges and management complexities in resource-limited settings.

Result: A 42-year-old male Nigerian primary healthcare practitioner presented with a week's history of persistent high-grade fever, headache, cough, and myalgia unresponsive to antimalarials and antibiotics. He had recent exposure to patients who died from a febrile illness with bleeding. RT-PCR confirmed LF. His condition deteriorated, manifesting in jaundice, epistaxis, haemoptysis, bloody stool, dark urine, breathlessness, and extreme fatigue. Examination revealed pyrexia, lethargy, epigastric tenderness, pulmonary oedema, and right-sided pleural effusion. The presence of jaundice prompted clinical suspicion of YF, later confirmed through RT-PCR. Intensive supportive care, including Ribavirin, led to a full recovery after 15 days of hospitalization.

Conclusion: Although rare, LF/YF coinfections pose serious health risks, demanding heightened surveillance, a high index of suspicion, rapid diagnostics, and improved healthcare capacity. Strengthening disease monitoring and public health interventions through a One-Health approach is essential to mitigating the risk of outbreaks from emerging zoonotic diseases.

Keywords: *Lassa fever, yellow fever, coinfection, Southeastern Nigeria.*

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Oral 056

Lassa fever in multiple gestation: A report of two cases with positive umbilical cord blood Lassa PCR in the absence of maternal viremia

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Introduction: Lassa fever (LF) is a prevalent viral hemorrhagic fever in West Africa, where twinning rates are highest. We present two cases of women with twin gestations and acute LF who were treated conservatively at our center.

Case 1: A 35-year-old woman (G7P5+1) presented at 27 weeks 2 days gestation with fever, weakness, and cough. She was diagnosed with LF. Ultrasound scan confirmed a viable monochorionic-diamniotic twin gestation. She received supportive therapy and intravenous ribavirin. Repeat Lassa PCR was negative on the 11th day, and she was discharged on request at 30 weeks. She represented at 38 weeks with abruptio placentae, delivering two healthy babies via emergency cesarean section.

Case 2: A 24-year-old woman (G4P3+0) presented at 31 weeks gestation with fever, poor appetite, and cough. Ultrasound scan confirmed a viable dichorionic-diamniotic twin pregnancy. She received supportive care and intravenous ribavirin. Fever resolved on the 4th day and repeat Lassa RT-PCR was negative on the 11th day. However, she took discharge against medical advice and represented 3 weeks later in labour, delivering one live and one deceased twin via emergency cesarean section.

Laboratory findings showed anemia in both women. Cord blood Lassa PCR was negative for both babies in Case 1 but positive for both twins in Case 2, despite negative maternal serum Lassa RT-PCR.

Both mothers remained afebrile and LASV-PCR negative postpartum. In Case 2, the live twin responded satisfactorily to treatment with IV ribavirin.

Conclusion: These cases highlight the importance of prompt diagnosis and treatment of Lassa fever in pregnancy, as well as close monitoring of maternal and fetal well-being. Further research is needed to understand the implications of positive umbilical cord blood Lassa PCR in the absence of maternal viremia.

Keywords: *Lassa fever, Multiple gestation, residual placental virus*

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Oral 057

PILOTING OF A LASSA FEVER CLINICAL TRAINING PACKAGE TO STRENGTHEN LASSA FEVER RESPONSE CAPACITY IN WEST AFRICA

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Introduction: Lassa fever is a viral haemorrhagic illness endemic in West Africa, posing challenges to outbreak containment. The absence of standardized clinical training undermines timely detection and care, particularly in low-experience settings. To address this, WHO and partners developed a targeted training package focused on equipping healthcare workers with essential clinical and outbreak response competencies.

Methods: Structured over 3 or 5 days, the training combines didactic sessions, practical exercises, clinical scenarios, and simulation excesise. It offers two pathways: Pathway 1, a basic training for early detection and referral and Pathway 2 an advanced supportive care package. Advocacy visits were integrated to engage stakeholders and promote sustainable funding. Participants were drawn from multiple agencies and professional cadres, including health facilities and government bodies.

Results: Pilots were conducted in 2024 with 232 participants trained (36% female) across Ebonyi (39%), Bauchi (30%), and Benue (31%). A majority (88%) were from healthcare facilities, reflecting a strong primary care bias: Primary (31; 13%), Secondary (22; 10%), and Tertiary (13; 6%). This distribution supports early detection and timely referral—the cornerstone of outbreak containment. Participants included medical doctors (31%), nurses (22%), community health officers (CHO) (7%), and Disease Surveillance and Notification Officers (DSNO) (6%). CHOs and DSNOs were more prominent in Pathway 1 (p = 0.024), reinforcing the focus on grassroots detection. Training led to improved pre/post assessment scores. Thirty-nine facilitators (31% female) from NCDC, WHO, and teaching hospitals supported delivery, with roles spanning case management, IPC, and coordination.

Conclusion: This training package significantly strengthened Lassa fever response capacity, by equipping multi-agency teams with clinical and coordination skills. Its adaptability and advocacy components make it a strategic tool for outbreak preparedness in both endemic and at-risk settings.

Keywords: *Lassa fever, rapid response, clinical training, outbreak containment*

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ASSSESSMENT OF LASSA FEVER EPIDEMIC OUTBREAK PREPAREDNESS OF HEALTH INSTITUTIONS IN OYO STATE

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Introduction: Epidemic preparedness includes all activities necessary at national and facility levels to effectively respond to disease outbreaks. In Nigeria, Lassa fever outbreaks are frequent, with healthcare workers at high risk of nosocomial transmission. This study assessed the knowledge, infection control practices, and preparedness of Oyo State health institutions in controlling Lassa fever spread.

Methods: A mixed-method approach was used. A descriptive cross-sectional study was conducted among 135 healthcare workers across Oyo State's 33 LGAs, including DSNOs, ADSNOs, PHCCs/MOHs, and M&E officers. Additionally, a key informant interview was held with the Oyo State Epidemiologist. A semi-structured questionnaire assessed knowledge on a 30-point scale; scores ≥50% indicated good knowledge. Descriptive statistics, chi-square tests, and logistic regression were used for analysis ($P< 0.05$).

Results: The respondents' mean age was 44.6 years (SD=8.34). While 77% demonstrated good knowledge of Lassa fever and its case definition, 58% had poor knowledge of preparedness. Infection control practices were generally good. However, only 48% had received Lassa fever surveillance training, and just 67.7% of those had training on epidemic preparedness. Preparedness pillars at both LGA and state levels were found inadequate. Chi square analysis revealed significant associations between knowledge and present cadre ($P< 0.0001$) and designation (P=0.002). Being a doctor or nurse was a strong predictor of good knowledge (OR=29.51, 95% CI: 2.50–347.92).

Conclusion: Oyo State's preparedness for a Lassa fever outbreak remains inadequate. There is a critical need for ongoing epidemic preparedness training. The government should establish an all-hazard Emergency Operations Centre, ensure rapid response team availability, allocate contingency funds, and provide necessary infrastructure to improve preparedness and response capacity for Lassa fever and similar epidemics. Furthermore, significant associations suggest that professional cadre and designation strongly influence knowledge, highlighting the need for targeted capacity-building interventions

Keywords: *Lassa fever, Outbreak, Epidemic preparedness, Healthcare workers, Health Institutions*

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Strengthening Health Emergency Resilience in Togo: Integration of rapid response mechanisms.

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Introduction: In response to the increasing frequency of health emergencies, Togo has initiated a comprehensive integration of Emergency Medical Teams (EMTs), Rapid Response Teams (RRTs), and SURGE (Strengthening and Utilizing Response Groups for Emergencies) teams. This study explores and identifies existing gaps and opportunities to enhance emergency response frameworks through stakeholder insights and collaborative discussions.

Methods: An exploratory qualitative study was conducted from March 31 to April 4, 2025, using focus groups and narrative inquiry approaches. Participants included 42 national health representatives, 3 international partners, and 7 technical experts. The study employed consensus mapping and narrative analysis to capture the dynamics, experiences, and expectations of various actors involved in the three emergency response programs.

Results: The analysis highlighted strong institutional commitment to integrated emergency preparedness but revealed persistent gaps in workforce availability, logistics, administrative coordination, and SOPs. Brainstorming and group work identified ten functional pillars for integration (including coordination, legal frameworks, deployment protocols, training, and monitoring). Participants mapped out partial and full integration areas among EMTs, RRTs, and SURGE teams. Recommendations focused on the harmonization of operating procedures, the establishment of a unified legal mandate, and the implementation of joint simulation exercises and capacity building programs. Additionally, two strategic roadmaps were developed: one for the operational integration of response teams and one for supporting the EMT accreditation process. Participants also emphasized the need for insurance coverage, post deployment debriefings, and shared rosters to ensure rapid mobilization. The workshop demonstrated the potential of a unified response system to streamline interventions and optimize resources.

Conclusion: The integration of EMTs, RRTs, and SURGE teams marks a transformative step toward strengthening Togo's health emergency preparedness. The jointly developed roadmaps offer actionable guidance for institutionalizing collaboration and aligning operational standards. Sustained leadership, cross-sectoral coordination, and donor support will be essential to move from planning

Keywords: *EMT, RRT, SURGE, health emergencies, Togo, integration, health security.*

From Outbreak to Opportunity: Leveraging Lassa Fever Trends from 2018 to 2025 to Strengthen Trial Site Preparedness and Vaccine Acceptance in Ebonyi State, Nigeria

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Introduction: Lassa fever remains a major public health threat in West Africa, with Nigeria bearing a substantial burden. Ebonyi State, Nigeria, is a recognised hotspot, and Alex Ekwueme Federal University Teaching Hospital Abakaliki (AEFUTHA) serves as the region's principal treatment centre and a designated site for a Phase 2b Lassa fever vaccine clinical trial. This study aimed to analyze trends in confirmed Lassa fever cases to inform vaccine trial preparedness, optimize recruitment strategies, and support vaccine acceptance efforts in endemic settings.

Methods: A retrospective descriptive study was conducted using data on confirmed Lassa fever cases reported in Ebonyi State from 2018 to April 2025. Data were sourced from the Ebonyi State Ministry of Health and AEFUTHA's Lassa treatment register. All 416 confirmed cases were analyzed using IBM-SPSS version 25 to assess temporal trends, age and sex distribution, seasonal patterns, geographic origin, survival rate and case fatality rate (CFR).

Results: Males accounted for 56.5% of 416 confirmed cases. The most affected age groups were 21–30 years (24.5%) and 31–40 years (25.2%). The overall CFR was 38.5%, peaking in 2023 (56.9%) and 2025 (57.9%). Seasonally, 83.7% of cases occurred between January and March. Geographically, 96.2% were from Ebonyi State, with a small number of referrals from neighbouring states. The annual incidence peaked in 2020, with 90 cases (21.6%), followed by a decline in subsequent years**.**

Conclusion: This eight-year trend analysis demonstrates the predictable epidemiological pattern of Lassa fever in Ebonyi State and provides critical insights for planning vaccine trial logistics, recruitment timing, and community engagement. The study enhances the trial site's readiness for vaccine trials and offers a practical evidence base for advancing equitable Lassa fever vaccine deployment in endemic West African regions.

Keywords: *Lassa Fever, Nigeria, Trend, Mortality, Vaccine Trial, Retrospective Studies*

Identifying Bottlenecks and Enablers in Achieving 7-1-7 Targets During the 2025 Lassa Fever Outbreak: Lessons from Ondo State, Nigeria

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Introduction: Lassa fever (LF) remains a major public health challenge in Nigeria, with Ondo State accounting for 30% of confirmed cases by epi-week 19, 2025. To strengthen outbreak management, NCDC adopted the 7-1-7 target: detect within 7-days, notify within 1-day, and respond within 7 days. Despite investments in response systems, many states struggle to meet these benchmarks. A 2025 field investigation in Ondo State examined key bottlenecks and enablers affecting outbreak management in the state.

Methods: We investigated the Lassa fever outbreak in Ondo State (Jan–Feb 2025) using the 7-1-7 framework. Data on emergence, detection, notification, and response were collected through document review and key informant interviews. Outbreak timelines captured intervals from symptom onset to detection, notification, and response. Thematic analysis identified system, resource, communication, and governance factors affecting achievement of 7-1-7 targets.

Results: Of the three 7-1-7 targets, only the one-day notification target was met. Detection and early response exceeded the 7-day targets, taking 13 and 22 days respectively. Challenges to achieving 7-1-7 targets were system, governance and communication related. Key system-related challenges were denial, low risk perception; Governance-related included poor funding leading to weak IMS coordination, weak government ownership, and over-reliance on partners' support and communication-related were misinformation, poor stakeholder collaboration, and unclear roles and responsibilities among the key stakeholders. As of epi week 6, of the 140 confirmed, representing 29% of suspected, 6% were HCWs and CFR was 13.6%.

Conclusion: While notification was timely, delays in detection and early response persisted. We recommend strengthening targeted RCCE to improve health literacy, trust, and early care-seeking. Ensuring accessible emergency funds and advocating for adoption of SHSAPs aligned with national priorities by policymakers will promote local ownership and improve timely response to LF and other epidemic-prone diseases at subnational levels.

Keywords: *Bottlenecks and Enablers, 7-1-7 Targets, Lassa Fever outbreak*

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Oral 062

Emergency Preparedness of Health Facilities and Health Workers for Viral Hemorrhagic Fevers in Ekiti State, Nigeria

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Introduction: Viral hemorrhagic fever (VHFs) remains a serious public health concern in West Africa, with Nigeria reporting recurring outbreaks. Preparedness of health facilities is essential for effective surveillance, early detection, and rapid response. However, limited assessments exist that evaluate institutional and workforce readiness at sub-national levels.

This study assessed the readiness of health facilities (HFs) and health workers (HWs) in Ekiti State, Nigeria, to respond to VHF outbreaks, including Lassa Fever. The objectives were to determine the proportion of health facilities with functional VHF preparedness protocols, assess training and knowledge levels of HCWs regarding VHF management, identify key institutional gaps, and make recommendations for improving outbreak response capacity.

Methods: A descriptive cross-sectional study was conducted in 59 randomly selected HFs in Ekiti State. Data was collected using a structured questionnaire adapted from the WHO hospital preparedness tool. HWs (n=136) were surveyed on their knowledge, training, and availability of emergency protocols. Statistical analysis was performed using SPSS version 26.0, and the level of significance, p-value, was set at < 0.05. Ethical approval was obtained from the Ekiti State Ministry of Health Ethics Committee.

Results: Most facilities had epidemic preparedness protocols (76.3%), epidemic management committee (93.2%), and budget for surveillance activity (72.9%). However, only 76.3% had specific VHF case management protocols. Among HWs, 78.0% had received training on VHF management, 96.6% on infection prevention and control (IPC), and 98.3% on disease surveillance. Good knowledge of VHF was found in 59.0% of HWs. A significant association was found between duration of employment (>10 years) and knowledge level p = 0.036).

Conclusion: While most HFs in Ekiti State demonstrated baseline preparedness for managing VHFs, critical gaps remain in training, surveillance protocols, and resource allocation. Improving preparedness through regular capacity building, investment in case management protocols, and sustained funding is crucial to strengthening outbreak readiness.

Keywords: *Viral Hemorrhagic Fevers (VHFs), Lassa Fever, Emergency Preparedness, Response, Health Facilities, Health Workers, Surveillance, Training and Knowledge, Case Management Protocols, Ekiti State, Nigeria.*

Facteurs biologiques associés à la mortalité de la maladie à Virus Ebola lors de la dixième épidémie dans la zone de santé de Beni, République Démocratique du Congo

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Introduction : Décrire les paramètres biochimiques et virologiques des cas confirmés Ebola et déterminer les facteurs liés à leur mortalité lors de la dixième épidémie de la maladie à virus Ebola (MVE10) à Beni, Nord-Kivu, RDC.

Méthodes : Lors de MVE10, nous avons conduit une étude transversale rétrospective sur une période allant du 20 Novembre 2018 au 27 Avril 2020 dans la zone de Santé de Beni. Nous avons prélevé les échantillons des cas confirmés MVE pour le suivi biochimique et virologique au laboratoire mobile de l'Institut national de recherche biomédicale (INRB) à Beni (Nord-Kivu, RDC) sur la plateforme Cepheid® GeneXpert (Cepheid, Sunnyvale, CA, USA) et sur l'automate Piccolo® Xpress (Abaxis, Union City, USA).

Résultats : Nous avons inclus 134 cas confirmés dont l'âge moyen était de 27±16 ans. La majorité des patients (61,2%) avaient des valeurs Ct pour la nucléoprotéine virale (NP) comprises entre 20 et 30, et 24,6 % avaient des valeurs Ct < 20. Les paramètres biologiques suivants ont été fréquemment perturbés : la glycémie (14,2 %), la créatininémie (36,3 %), l'ASAT (95,7 %) et l'ALAT (69,7 %), les amylases (49,3 %), la créatine kinase (66,37 %) et de la CRP (70,1 %). En analyse univariée, les valeurs Ct < 20 étaient associées à une mortalité accrue avec : hypoglycémie [OR 2,9], hypercréatininémie [OR 5,4], ASAT/ALAT élevés [OR 11,3], hyperamylasémie [OR 4,86], créatine kinase augmentée [OR 4,84] et CRP élevée [OR 4,58]. En combinant Ct < 20 et perturbations multiviscérales (pancréatique, hépatique, musculaire, inflammatoire), l'OR de mortalité était de 11,41.

Conclusion : Une charge virale élevée (valeurs Ct < 20) associée à des atteintes multiviscérales était associée à une forte mortalité lors de la MVE10 à Beni. La prise en charge adaptée et holistique est essentielle pour améliorer la survie des malades.

Mots clés : *MVE, Ebola, paramètre biologique, mortalité, valeurs Ct, Beni, RDC.*

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Genome diversity of SARS-CoV-2 lineages associated with vaccination breakthrough infections in Addis Ababa, Ethiopia

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Introduction: COVID 19 vaccination have played a pivotal role in reducing the severity and spread of the disease. Breakthrough infections among vaccinated individuals have raised concerns about vaccine effectiveness due to emerging variants capable of immune escape. This study investigates genome diversity of SARS-CoV-2 in Ethiopia, focusing on lineage distribution among vaccinated and unvaccinated individuals to understand transmission dynamics and implications for public health interventions.

Methods: A case control study was conducted from January to April 2023 across 22 health facilities. Nasopharyngeal swabs were collected from 298 individuals who tested positive for COVID 19 using rapid diagnostic tests (RDTs). Reverse transcription quantitative PCR (RT qPCR) was performed to determine viral load based on Cycle threshold (Ct) values. Whole genome sequencing was conducted to identify SARS-CoV-2 lineages associated with breakthrough infections in vaccinated individuals compared to unvaccinated cases.

Results: Of the 298 samples sequenced, 281 passed quality thresholds for genomic analysis. Among these, 44.8% (126) had received at least one vaccine dose, 51.9% (146) were unvaccinated, and 3.2% (9) had unknown vaccination status. All sequences belonged to the Omicron variant, with XBB.1.5 dominant lineage (38.4%), in both vaccinated and unvaccinated cases, followed by FL.2 (9.3%) and XBB.1.9.1.2 (7.8%), The rest of 22 other lineages comprised 44.5% cases. XBB.1.5 was detected in 47.2% of vaccinated and 52.8% of unvaccinated individuals. Notably, 25% of cases exhibited high viral loads (Ct values13–15), suggesting strong viral replication and high transmissibility, even among vaccinated individuals.

Conclusion: The predominance of the immune evasive XBB.1.5 lineage in both vaccinated and unvaccinated individuals highlights potential continued transmission and breakthrough infections. These emphasize critical need for continuous genomic surveillance, timely vaccine updates, and the development of vaccines for adaptive vaccination strategies and real time monitoring of variant dynamics to maintain vaccine effectiveness and enhance pandemic preparedness effort.

Keywords: *Breakthrough infection; Genome diversity; Vaccination; Lineage; SARS-COV-2 variant*

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Oral 065

Improving Rational Prescription in Lassa fever Treatment Centre: The Role of Prescriber Education

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Introduction: Lassa Fever (LF) clinically presents with non-specific features like many other tropical febrile illnesses. Patients may also present with complications making diagnosis challenging. Consequently, physicians attending to suspects and confirmed cases face broad differential diagnosis posing to risk of multiple/inappropriate prescriptions with potential harm to patients. The study aimed to promote rational prescription (RP) practices among doctors in LF treatment centre (LFTC) through structured training.

Methods. An RP training was conducted at LFTC in Bauchi, Nigeria between January and March 2024. Baseline prescription practice was assessed using the Médecins Sans frontiers (MSF) RP tool (version 4, 2018.OCG QoC tool) and repeated two months post RP training. The training covered the key RP components of diagnostic clarity, use of guiding protocols, contraindications, and appropriate drug use with respect to posology, treatment duration, and route of administration. Forty patients case files (10% of admissions) were randomly selected and reviewed by a group 4 of four trained reviewers for both pre- and post assessments. Compliance was categorised as high (above 75%)., medium (60 – 75%), and low (below 60%).

Results: The overall RP compliance rate improved from 40% to 68% post training. Improvement across key RP components were, diagnostic clarity 60% to 75%. protocol compliance 65% to 93%, posology from 65% to 98%, treatment duration from 50% to 100%, route of administration rose to 98% from 73% and consideration for contraindication was 73% and improved to 98%.

Conclusion: RP practices can significantly improve during LF outbreak through targeted prescribers training. Although significant improvement was observed at three months, the outcome may improve more with continuous training over time. We recommend regular RP training as a standard component of LF outbreak case management to promote anti-microbial stewardship.

Keywords: *Rational Prescription, Lassa Fever, Treatment Centre, posology*

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Oral 066

Strengthening Rapid Response Capacity for Lassa Fever Outbreaks in Nigeria: Lessons from Multi-Sectoral National RRT Deployments in 2025

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Introduction: Lassa Fever is a recurring public health threat in Nigeria, especially during the dry season. In 2025, the Nigeria Centre for Disease Control and Prevention (NCDC) deployed multidisciplinary National Rapid Response Teams (NRRTs) to affected states. This study highlights the implementation and outcomes of these deployments as a model for enhancing outbreak containment through coordinated, data-driven, multi-sectoral response efforts.

Methods: Following an activation of the Lassa Fever Incident Management System on 20 December 2024, NCDC deployed NRRTs to ten states between January and February 2025. The first batch targeted seven high-burden states – Bauchi, Ondo, Edo, Taraba, Ebonyi, Plateau, and Kogi, with representatives from surveillance, laboratory, case management, coordination, logistics, risk communication, and environmental health. Nigeria Field Epidemiology and Laboratory Training Program (NFELTP) fellows were included to support field epidemiology and research. As cases surged in new areas and declined in a previously high burden state, a second deployment followed to Benue, Gombe, and Nasarawa. Coordination involved federal agencies, state ministries of health, AFENET and WHO.

Results: Balanced pillar representation and NFELTP inclusion enhanced surveillance, analytics, research, and decision making. NRRTs conducted active case searches, capacity building, health worker and community sensitization, and IPC assessments in isolation centers. Referral systems were reinforced to reduce mortality. Testing delays were escalated to NCDC and state authorities, prompting stronger state level case management and improved national support for newly optimized laboratories. These labs increased testing and reporting, expanding the national network from 8 to 10 laboratories – a 20% rise, and situation reports improved in quality. The response strengthened coordination and subnational engagement.

Conclusion: The 2025 NRRT deployments demonstrate the value of integrated, multi-sectoral teams in enhancing outbreak detection and containment. This collaborative model offers a scalable framework for Lassa Fever and broader epidemic response across West Africa.

Keywords: *Lassa Fever, Epidemiologic Surveillance, Outbreaks, Emergency Responders, Public Health, Intersectoral Collaboration*

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Oral 067

Impact of haemodialysis on the outcome of severe paediatric Lassa virus disease - Question of a half loaf?

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Introduction: Previous studies show a strong relationship between the occurrence of severe Acute kidney injury (AKI) and the outcome of paediatric Lassa virus disease (PLVD), and acute intermittent haemodialysis (AIHD) is anticipated to turn this around. However, only limited data are available to guide practice. We present our experience of the impact of AIHD on the outcome of severe PLVD.

Methods: It was a retrospective observational study. We reviewed the clinical course and outcome of 25 children with severe (stage 3) AKI in PLVD admitted at Irrua Specialist Teaching Hospital, between January 2018 and March 2025. 13 of the 25 children had AIHD while 12 did not. Illness severity was categorized based on the presence versus absence of haemodynamic instability plus/minus other severity indices and outcome as survived versus died. Groups were compared using Chi square or Fisher's exact tests, level of significance was set as p <0.05.

Results: Haemodynamic instability plus/minus other indices of illness severity were present in 4/13 (31%) dialyzed vs 7/12 (58%) undialyzed children (OR (95% CI) 0.32 (0.06,1.64), p = 0.166). Case fatality rate was 7/13 (54%) among dialyzed vs 10/12 (83%) undialyzed children (OR = 0.23 (0.04, 1.51), p = 0.250). The average number of dialysis sessions was 3.4 (range 1 - 6), and 3/13 (23%) dialyzed children had intradialytic complications.

Conclusion: Dialysis had no significant impact on the outcome of severe PLVD perhaps due to the presence of severe non-renal organ dysfunctions, especially haemodynamic instability. This is representative of 'a half loaf is better than none' scenario and emphasizes the need for continuous renal replacement therapy (CRRT), which is recommended for haemodynamically unstable children. Pending access to CRRT, however, we recommend the need for operational studies involving optimization of AIHD with exchange blood/plasma transfusion and more dialysis sessions among others.

Keywords: *Children; Haemodialysis; Impact; Outcome; Severe Lassa virus disease.*

Prevalence, Types and Determinants of Organ Failure among Hospitalized Adult Lassa Fever Patients in a Tertiary Hospital in South-East Nigeria

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Introduction: Lassa fever (LF) is an acute viral haemorrhagic fever (VHF) endemic to parts of West Africa. Multi-organ failure is a frequent cause of death in patients hospitalized with LF. This study determined the prevalence, types, and determinants of organ failure among adult patients with confirmed LF managed at the Alex Ekwueme Federal University Teaching Hospital Abakaliki (AEFUTHA), Ebonyi State, Nigeria.

Methods: This hospital-based, cross-sectional study enrolled adults (≥ 18 years) with real-time polymerase chain reaction (RT-PCR) confirmed LF from October 2022 to April 2023 at AEFUTHA. Data were collected using a modified Nigeria Centre for Disease Control and Prevention (NCDC) VHF case investigation form, including socio-demographics, medical history, and laboratory tests. Logistic regression models were used to assess the determinants of organ failure and in-hospital all-cause mortality.

Results: Sixty adult patients were enrolled, with a mean age of 35.2 years (range: 18–62), and 73.3% (44) were males. Organ failure occurred in 50% (30) of cases, with acute kidney injury, AKI (33.3%), central nervous system dysfunction (25%), and liver failure (20%) being most frequent. Multi-organ failure was seen in 33.3% (20) of participants. In-hospital mortality was recorded in 25% (15) of participants. Duration of hospital stay was comparable between patients with organ failure (10 days, IQR=15.00) and those without organ failure (10.5 days, IQR=6.00), p= 0.35. Elevated urea levels (AOR 1.44, 95% C.I.: 1.04 – 2.05) and GCS <13 (AOR: 0.23, 95% C.I.: 0.06 – 0.81) predicted organ failure. In-hospital mortality was independently associated with respiratory failure (AOR 8.88, 95%CI: 1.77 – 44.41) and AKI (AOR 20.00, 95%CI:4.09 – 97.81).

Conclusion: Our LF cohort experienced a high frequency of organ failure, with respiratory failure and AKI independently predictive of mortality. Treatment outcome of hospitalized LF patients can potentially be improved through early, targeted monitoring and support of organ function.

Keywords: *Lassa fever, Mortality; Nigeria, Organ failure, Outcome*

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Oral 069

Early Action Review of Lassa Fever Outbreaks in Nigeria: Utilizing the 7-1-7 Framework as a Performance Improvement Metric

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Introduction: Lassa fever, an acute viral haemorrhagic fever, is endemic in Nigeria. Cases are recorded all year round, especially in high-burden areas. Annually, the impact of the disease is increasing to non-endemic areas, and the case fatality rate has remained under 20%. Hence, the need to evaluate the timeliness of critical actions for outbreak control and response.

Methods: In 2025, the Nigeria CDC deployed 10 multisectoral National Rapid Response Teams (NRRTs) to 10 States using a One Health approach. These teams evaluated outbreak containment efforts, with the 7-1-7 timeliness assessment tools and template. States were debriefed on milestone dates, bottlenecks, and remedial actions for immediate implementation. Additionally, teams presented on specific areas during the national debrief to address issues beyond subnational levels.

Results: 50% of states met the 7-day target for detection, 100% achieved the 1-day target for notification, and 50% met the 7-day target for early effective response. However, only 20% of the 10 states met all targets: a reduction in improvement from a retrospective analysis of Lassa fever outbreaks in six states (50%) and nine states (33%) in 2023 and 2024 respectively. Identified detection bottlenecks included poor health-seeking behaviour; late presentation in treatment centres; and low clinical suspicion among healthcare workers. Whereas, identified response bottlenecks included lack of funding for preparedness and response, and state reliance on NRRTs/partners' support to initiate critical early response actions.

Conclusion: The 7-1-7 Framework is a valuable tool in assessing and improving outbreak response performance and enabling containment at source. However, the decline to just 20% of states meeting the targets highlight gaps in training/adoption, particularly at the subnational level. Strengthening adherence to the 7-1-7 framework will require increased domestic funding, continuous training and mentorship, routine monitoring of early response actions within existing workflows.

Keywords: *Lassa Fever, 7-1-7 Framework, Timeliness, Response, Action Review*

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Oral 070

Clinical presentation and predictors of severity in Lassa fever patients at a tertiary hospital in Abakaliki, Nigeria, 2018-2024

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Introduction: Lassa Fever (LF) remains an important public health problem in Nigeria. Timely case detection and treatment of LF is challenging due to incomplete understanding of disease progression. Médecins Sans Frontières (MSF) and AEFUTHA hospital (Abakaliki, Nigeria) treated over 1,700 suspected and 400 confirmed LF cases since 2018. This study aimed to describe the clinical presentation of LF and identify symptoms and biomarkers of disease prognosis and mortality.

Methods: All patients with confirmed LF (positive polymerase chain reaction–PCR) presenting in AEFUTHA between 2018 and 2024 were included. Data was extracted from clinical and laboratory records (symptoms and biomarkers: molecular, biochemical and hematological). Data were cleaned and statistically analyzed using Artificial Intelligence (a Co-pilot based model) and regression models. We report here preliminary univariate analysis with mortality as outcome. Ethical clearance was obtained from the relevant review boards.

Results: Preliminary analysis shows a 40.3% mortality rate among confirmed LF cases, with >50% of deaths occurring within 48 hours of presentation. In the univariate analysis, non-survivors compared to survivors demonstrated significant differences at admission ($p < 0.05$): older age (median: 36 vs. 29 years), elevated markers of liver damage (median transaminases: ALT 123 vs. 53 U/L and AST 132 vs. 89 U/L), kidney dysfunction (median creatinine 237 vs. 82 µmol/L and urea 11.8 vs. 3.8 mmol/L), higher white blood cell count (median: 11.7 vs. 5.8 cells/µL), increased neutrophil percentage (median: 56% vs. 49%), and decreased monocyte counts (median: 9% vs. 12%).

Conclusion: This study observed a high case fatality rate (40,3%). Most deaths were reported within 48 hours of admission. The elevated biomarkers for liver and kidney damage in non-survivors suggest patients often present at a later stage of the disease when critical organ damage has occurred. This highlights the urgent (research) need for improved early detection strategies for Lassa Fever.

Keywords: *Lassa fever, mortality, artificial intelligence, Nigeria*

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Oral 071

Study of the factors associated with the acceptability of the coronavirus vaccine in adults in Kinshasa in the commune of Lemba in 2022.

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Introduction: The coronavirus disease 2019 (COVID-19) is a global pandemic caused by the novel coronavirus SARS-CoV-2. The main challenge in COVID-19 vaccination is vaccine acceptance. In this study, we aimed to investigate the factors associated with vaccine acceptance among adults in Kinshasa, specifically in the Lemba commune, in 2022.

Methods: A descriptive and analytical cross-sectional study was conducted in Kinshasa, DRC, f.rom December 1st to December 31st, 2022. The study included adult men and women who had resided in Lemba commune for at least 6 months. A two-stage random sampling technique was used, and data were collected through individual interviews at participants' homes after obtaining their consent. Data were entered into Epi Info 7, and descriptive and multivariate analysis was performed using logistic regression with R software, version 4.0.5.

Results: A total of 422 households were surveyed, with participants' ages ranging from 19 to 70 years and a mean age of 35.38 years ± 9.84 years. The majority of participants were aged 25 to 59 years (93.8%), and there were more women than men (81.5%). Most participants were single (68%), and 72% had a university level of education. Approximately 43.4% of respondents had accepted the COVID-19 vaccine. Factors associated with vaccine acceptance included a history of chronic illness (ORa=0.69 [0.27-1.71]), exposure to misinformation or vaccine hesitancy from social media (0.22 [0.11-0.42]) and media (ORa=0.16 [0.05-0.21]), fear of vaccine side effects (ORa=0.74 [0.40-1.38]), fear that the vaccine would endanger life (ORa=0.63 [0.35-1.12]), vaccine hesitancy (ORa=0.04 [0.01-0.08]), and ease of getting vaccinated (ORa=0.83 [0.36-0.91]).

Conclusion: Several factors associated with COVID-19 vaccine acceptance were identified in our study population. It is important to address these factors to improve vaccine acceptance.

Keywords: *Acceptance, vaccine, COVID-19, adult, DRC*

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Oral 072

Strengthening outbreak response in West Africa: Insights from a Nigerian simulation exercise

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Introduction: Recurrent outbreaks of emerging diseases highlight the need for efficient epidemic preparedness and response mechanisms in Nigeria. Simulation exercises are essential for evaluating response capabilities and strengthening public health emergency preparedness. In February 2025, Irrua Specialist Teaching Hospital (ISTH), Nigeria, conducted a field simulation exercise on the Sudan Virus Disease (SVD) outbreak in a rural community. The objectives were to assess the reproducibility of the World Health Organization (WHO) simulation exercise cycle in rural settings, evaluate existing response procedures, test coordination during emergencies, and identify areas for improvement.

Methods: The simulation adhered to the WHO simulation exercise cycle, comprising pre-exercise, exercise conduct, and post-exercise phases. Pre-exercise activities included establishing an exercise management team, developing an action plan, engaging stakeholders, conducting participant briefings, and developing the master scenario and evaluation tools. The two-day exercise simulated multiple SVD cases, prompting activation of emergency response structures. Participants, organized under emergency response pillars, undertook tasks such as community engagement and risk communication, case management, mobile laboratory diagnostics, contact tracing, safe burial practices, and coordination of the Emergency Operations Centre (EOC). Performance was evaluated by independent observers using a standardised checklist, immediate debriefs and a formal post-exercise review.

Results: The exercise confirmed that all WHO simulation phases are reproducible in the Nigerian rural setting. Effective pre-exercise planning and stakeholder engagement, particularly through the Community Advisory Board, addressed community resistance. ISTH demonstrated a high level of preparedness, with average performance scores of 80% across all tasks. Identified gaps included poor communication and instruction dissemination, inadequate access control at the isolation area, a lack of centralised waste management system, and vehicular breakdown.

Conclusion: The exercise provided insights into institutional preparedness for emerging infectious disease outbreaks. Replicating such simulations across other Nigerian States and the West African sub-region is recommended to strengthen epidemic preparedness.

Keywords: *Simulation, Epidemic Preparedness, Infectious Disease Outbreak, Emerging Infectious Disease.*

Indications and potential diagnostic utility of lumbar puncture in the management of non-neonatal pediatric Lassa virus Disease

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Introduction: The need for lumbar puncture (LP) in the management of paediatric Lassa virus disease (PLVD) has been poorly researched. We missed an opportunity to assess the need in an earlier study of febrile children with convulsions because of lack of testing of CSF samples. The objectives of this study were to delineate the indications for LP; estimate its place in diagnosis; and correlate CSF test-yield with clinical presentation.

Methods: 87/409 (21%) of non-neonatal infants/children with LVD admitted from 01/01/2017-30/06/2023 had a LP. We classified the 87 children based on the test-yield of serum and CSF for presence of Lassa virus (LASV) antigen and compared the clinical and laboratory presenting features between the groups using $\chi 2$ and/or Fisher exact tests, with p <0.05 set as the level of significance.

Results: Complete data sets were available for 76/87 (87%) children and 59/76 (78%) had LASV meningitis. 49/76 (65%) were serum/CSF antigen positive, 10/76 (13%) were serum negative/CSF positive and 17/76 (22%) serum positive/CSF negative. Overall, 35/41 (85%) children $\geq$2 years old with vs 21/33 (67%) without typical meningeal signs [OR (95% CI) = 3.33 (1.09, 10.21), p = 0.030] had LASV meningitis while 35/57 (61%) with meningitis vs 6/17 (35%) without meningitis [OR (95% CI) = 2.92 (0.94, 9.02), p = 0.057] had typical meningeal signs.

Conclusion: Reliance on serum testing alone without concomitant CSF testing and reliance on the presence of typical meningeal signs could miss the diagnosis of LASV meningitis in about 1/5th of children with LVD. LP should be part of the standard of care of children with suspected or confirmed LVD.

Keywords: *CSF testing; Lassa virus meningitis; Lumbar puncture; Standard of care; Typical meningeal signs.*

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Oral 074

Contribution of Lassa Fever to Severe Acute Kidney Injury in An Endemic Area: A Retrospective Observational Study in Southern Nigeria.

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Introduction: Amongst the diverse etiologies of severe acute kidney injury (AKI), Lassa fever (LF) occupies a prominent position in endemic areas of West Africa. However, there is a paucity of studies that compare the characteristics of LF and non-LF-associated cases. The objective of this study is to determine the contribution of LF to severe AKI in an endemic area, and compare the illness characteristics and factors associated with mortality in LF versus non-LF-associated AKI.

Methods: This is a retrospective observational study. We reviewed the records of all patients admitted with severe AKI from 1st January 2019 to 30th September 2022 at Irrua Specialist Teaching Hospital (ISTH) and retrieved data on patients' demography, clinical presentation, treatment and outcome. We compared the frequencies of categorical data and means of continuous data between patients with LF and those without LF using chi-square test, t-test and Mann-Whitney U test as appropriate, with the level of statistical significance set at $p < 0.05$.

Results: Fifty-four (41.5%) of 130 patients with severe AKI had LF. LF was associated with a significantly lower mean age ($p = 0.013$), platelet count ($p = 0.010$), and mean levels of indices of renal dysfunction (p 0.02 - <0.001) but there was no significant difference in mortality rates (LF 27.8%; non-LF 39.5%; $p = 0.1674$). Mortality was overall associated with need for inotropes, requirement for supplemental oxygen, and hemodialysis, and length of admission, but the associations with the latter and need for supplemental oxygen were only significant among patients without LF.

Conclusion: LF is a major cause of severe AKI in endemic areas, but it is not associated with any differential risk of mortality in AKI perhaps because of a less severe renal dysfunction.

Keyword: *Severe AKI, Hemodialysis, Lassa fever, Non-LF-AKI.*

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Oral 075

Clinical Outcomes of severe Lassa fever in West Africa: A systematic Review and Meta-Analysis

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Introduction: Lassa fever (LF) is an acute viral haemorrhagic fever that poses a substantial public health security threat in West Africa. The non-specific clinical presentation of LF, coupled with a lack of reliable point-of-care diagnostics, means delayed diagnosis, leading to severe complications and mortality during epidemics. This systematic review aimed to determine the clinical outcomes of severe LF in West Africa.

Methods: An extensive online search using PubMed, Web of Science, Scopus, CINAHL, and Google Scholar from September 1, 2014, to August 31, 2024, following PRISMA guidelines. A meta-analysis was performed to calculate pooled estimates of case fatality ratios (CFRs) of severe LF.

Results: We included 19 studies that reported data from 4177 patients hospitalized with LF of any age. Most of the studies used retrospective cohort designs (16/19; 84.2%), with the majority conducted in Nigeria (15/19; 78.9%). The highest mortality rate was observed in a Sierra Leonean study (63.0%), while a group-based analysis of Nigerian studies using a random effects model identified Owo as having the highest mortality rate at 13% (95% CI: 06- 23; I2=98 %). The pooled mortality rate for severe LF was 19% (95% CI:10- 32). The most common complications of LF were acute kidney injury (AKI) at a pooled proportion of 19% (95% CI: 13- 26; I2=89%), followed by abnormal bleeding at 17% (95% CI: 9- 30; I2=98%), and CNS manifestations at 15% (95% CI: 6- 32; I2=98%).

Conclusion: With one out of every five hospitalized LF patients likely to die in West Africa, accelerating the development of rapid diagnostic tests, licensed vaccines, and novel therapeutics is crucial. Strengthening community engagement, risk communication, developing regional treatment guidelines, and decentralizing LF care units will enhance case management, reduce mortality, and minimize complications.

Keywords: *Lassa fever, West Africa, Mortality rate, Abnormal bleeding, Acute kidney injury, CNS manifestation.*

Predictors of Acute Kidney Injury and In-hospital Mortality in Adult Patients With RT-PCR Confirmed Lassa Fever Infection in Southwest, Nigeria

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Introduction: Despite the increased rates of acute kidney injury (AKI) in adult admitted and treated for Lassa fever and associated mortality, data on the epidemiology of AKI in this context is limited. We investigated the rates and predictors of AKI and associated in-hospital mortality at a National Treatment Centre, South-west Nigeria

Methods: This prospective study included 482 patients with RT-PCR Confirmed Lassa Fever admitted to the to the Lassa fever ward at the Federal Medical Centre, Owo (FMCO) in Ondo State, Nigeria, from January 2019 to December 2024. The outcome parameters of the study were rates of AKI and mortality and associated risk factors. Predictors of AKI and in-hospital mortality were established by the multivariable logistic regression analysis and Cox proportional hazards regression analysis.

Results: The prevalence rate of AKI was 21% (95% CI, 17.4% - 24.9%). A total of 48 (10.1%) patients died, including 33 (32.7%) with AKI, and 15 (4.0%) without AKI, with odds ratio; 11.647 confidence interval: 6.001 – 22.604, p=<0.001. Predictors of AKI were male gender (p<0.001), bleeding abnormalities (p=0.044), diabetes (p=0.029), high white blood cell counts (p=0.005), increased neutrophil counts (p=0.003), and elevated aspartate transaminase levels (p=0.017). Identified predictors of mortality were AKI (p=0.033), oliguria (p=0.045), (p=0.001), haematuria (p=0.015), and monocyte counts (p=0.022). The Kaplan Meier Survival Curve showed that patients with AKI had significantly poorer survival rates compared to those without AKI, with mean survival durations of 19.0 days versus 29.7 days (p≤0.001).

Conclusions: AKI is prevalent in hospitalized adults with Lassa fever and is associated with high mortality due to factors such as oliguria, blood pressure, haematuria, and monocyte count. Identified predictors of AKI include male gender, bleeding, diabetes, white blood cell count, and aspartate transaminase levels.

Keywords : *AKI, Outcome, Predictors, Mortality, Lassa fever*

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Predictive parameters for Lassa Fever diagnosis in Nigeria: An empirical model

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Introduction: Lassa fever (LF) is a major public health concern across West Africa. Diagnostic delay stems from late presentation, low clinical suspicion, and limited molecular diagnostics. Early detection is critical for timely treatment and favourable outcomes.

Methods: This hospital based, cross sectional study at Alex Ekwueme Federal University Teaching Hospital, Abakaliki (2023 2024) recruited febrile adults (≥18 years) suspected of LF. Data collection via interviewer administered questionnaires, physical exams, laboratory tests, and real time polymerase chain reaction (RT-PCR) were performed. Parameters were compared between RT-PCR positive/negative participants. Predictive variables were assessed using multivariate logistic regression. A predictive scoring system for LF diagnosis (PLF score) was developed, and sensitivity/specificity calculated ($p < 0.05$).

Results: A total of 150 participants (males 76 [50.6%], females 74 [49.3%], mean age 36.6±15.3 years) were recruited. Self reported rodent exposure was the commonest epidemiologic factor (64.6%). RT PCR confirmed LF case positivity was 58.6% (88/150). LF positivity was significantly associated with rodent exposure (70.1% vs 29.8%, p=< 0.001), bush meat consumption (76.3% vs 23.7%, p=0.009), and Ebonyi State residence (53.1% vs 46.9%, p=< 0.001). LF positive participants were significantly more likely to present with fatigue, muscle pain, red eyes, haematuria, and proteinuria (All p values < 0.05). LF positivity was independently associated with rodent exposure, adjusted odd ratio (AOR)= 9.14, 95% C.I: 1.51 55.48), tinnitus (AOR=34.60, 95% C.I: 1.25 954.31), muscle pain (AOR=6.98, 95% C.I: 1.36 35.92), elevated AST (AOR=76.923, 95% C.I: 6.29 1000.00), and elevated creatinine (AOR=10.989, 95% C.I: 17.27 – 71.43). The PLF score had 98.9% sensitivity and 60.3% specificity at ≥3.5, area under the curve (AUC) 0.95, p< 0.001.

Conclusion: Rodent exposure, tinnitus, myalgia, elevated AST, and creatinine strongly predict LF. Integrating the PLF score with WHO case definitions could facilitate early detection/intervention, limit spread, and ensure a successful outcome.

Keywords: *Lassa fever, Predictive Score, Diagnosis, Nigeria.*

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Oral 078

Geospatial Mapping and Susceptibility Modelling of Lassa fever Outbreaks in Resource-limited Settings: A case Study of Benue State, Nigeria

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Background: Lassa fever remains a public health threat in Nigeria, with increasing incidence in regions previously non-endemic. Despite ongoing surveillance efforts, geospatial heterogeneity in outbreak patterns complicates timely interventions. This study examined multi-dimensional risk factors influencing Lassa fever outbreaks, analyzed their geospatial dynamics, and developed a susceptibility model for targeted intervention.

Methods: A cross-sectional, mixed-methods geospatial epidemiological study was conducted across 277 wards in Benue State. Twenty-two indicators spanning environmental, socio-cultural, epidemiological, and health system domains were normalized and integrated using a Multi-Criteria Evaluation (MCE) framework. A linear weighted sum model was applied to compute a Susceptibility Index for each ward. Spatial clustering was analyzed using GIS tools. Model validity was assessed through correlation with historical Lassa fever case and death data, and Receiver Operating Characteristic (ROC) analysis was used to define optimal risk thresholds.

Results: The Susceptibility Index ranged from 0.14 to 0.65. ROC analysis identified 0.38 as the optimal threshold for distinguishing high-risk wards. Based on this, 51.3% of wards were classified as high-risk, 38.6% as moderate-risk (0.30–0.38), and 10.1% as low-risk (≤0.30). Spatial clustering revealed that LGAs such as Kwande, Oju, OBI, Buruku, and Gwer West had the highest concentrations of high-risk wards. Spearman correlation coefficients between the Susceptibility Index and historical cases and deaths were 0.13 and 0.09, respectively.

Conclusion: This study demonstrates the effectiveness of geospatial MCE modeling in identifying ward-level susceptibility to Lassa fever. The use of data-driven thresholds enhances model validity and supports targeted surveillance, resource allocation, and intervention planning. The approach offers a scalable framework for epidemic preparedness in other endemic regions.

Keywords: *Lassa fever, spatial epidemiology, susceptibility modelling, Nigeria*

Insights into Long-term antibody response in Lassa fever: A five-year follow-up study of Lassa fever survivors in Nigeria

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Introduction: Lassa fever (LF), a viral hemorrhagic fever caused by *Lassa virus* (LASV), remains a persistent public health threat in West Africa. Despite anecdotal reports of immunity following infection, no licensed vaccine or therapeutic exists. Understanding the **immune response**, especially the **antibody dynamics** in LF survivors, is essential for guiding **vaccine development** and **public health interventions**. This study aimed to assess long-term **serologic responses**, specifically the kinetics and neutralization capacity of antibodies, including **cross-neutralization** of LASV strains over 60 months post-convalescence.

Methods: This longitudinal, prospective study was conducted at Irrua Specialist Teaching Hospital in collaboration with the Bernhard Nocht Institute for Tropical Medicine (BNITM), Germany. A cohort of 159 LF survivors was followed for 60 months post-discharge. Sera were collected at up to 12 time points and assessed for anti-LASV **IgG antibodies** using ELISA (targeting **glycoproteins (GP)** and **nucleoproteins (NP)**). Neutralization assays using live virus were performed under **BSL-4** conditions at BNITM.

Results: IgG titers against LASV GP increased during late convalescence, while anti-NP IgG was detectable early during acute infection. Antibody levels remained high for up to five years. Sera demonstrated robust **neutralizing activity** against native LASV (Lineage II) and cross-neutralization against LASV Lineages II, III, IV, V, and VII. However, cross-neutralization was limited against Lineage V. Despite stable IgG titers, a late decline in neutralization capacity was observed.

Conclusion: LASV-specific antibodies persist in survivors for up to five years, with substantial neutralizing and cross-neutralizing activity against most LASV lineages, excluding Lineage V. However, a potential late decline in functional neutralization capacity was noted. An extended follow-up cohort is underway to further evaluate long-term immunity and implications for vaccine strategies.

Keywords: *Lassa Fever*, *Lassa virus*, *Immunoglobulin G*, *Neutralization Tests*

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Comparative Genomics of Lassa Virus Strains in West Africa: Insights into Viral Evolution

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Introduction: Lassa fever, caused by the Lassa virus (LASV), is a viral hemorrhagic fever, and a zoonotic arenavirus endemic in West Africa, with significant public health implications due to its high mortality and frequent outbreaks. While previous studies have characterized LASV lineages, understanding the genetic variability of LASV strains circulating in different ecological settings is crucial to elucidate mechanisms of viral evolution and transmission dynamics. In this study, we performed a comparative genomic analysis of LASV strains from human and rodent hosts collected across multiple West African countries to investigate evolutionary patterns, regional clustering, and signatures of functional divergence.

Methods: Whole-genome sequences (160 complete genomes) of both human and rodent were retrieved considering the NCBI Virus database and the BV-BRC database. They were subjected to high-resolution alignment and variant calling. Phylogenetic analysis and population structure were inferred using MEGA X and IQ-tree tools. Pangenomic mapping and variant annotation were also done to identify lineage-specific insertions.

Results: Phylogenetic analysis delineated strains into well-supported lineage clusters, with distinct genetic signatures corresponding to geographic regions such as Nigeria, Sierra Leone, and Liberia. Notably, strains from Nigeria showed greater intra-lineage diversity, whereas isolates from Sierra Leone exhibited a more conserved genomic profile. Comparative analysis of coding regions revealed mutations predominantly localized in the glycoprotein complex (GPC) and nucleoprotein (NP), with evidence of positive selection in domains associated with host cell entry and innate immune antagonism. Variation in the zinc-binding domain of the NP and fusion loop of GPC may contribute to differences in pathogenicity and immune evasion strategies.

Conclusion: These findings emphasize the genomic plasticity of LASV and its capacity for regional adaptation. The observed heterogeneity may influence the efficacy of diagnostic tools and universal vaccine candidates. Continuous genomic surveillance and comparative analysis are essential to inform regional preparedness strategies of effective medical countermeasures.

Keywords: *Lassa virus, comparative genomics, viral evolution, phylogenetics, lineage diversity, genomic surveillance.*

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Oral 081

Evolving Epidemiology of Lassa Fever in Edo State, Nigeria (2011–2024): A Retrospective Analysis of Demographic, Geographic, and Health System Trends.

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Introduction: Edo State has consistently recorded the highest number of confirmed Lassa fever cases in Nigeria each year. To better prepare for and respond to outbreaks, it's important to understand how the pattern of infections is changing over time. This study reviewed Lassa fever cases in Edo State from 2011 to 2024, with attention to changes in affected groups, where patients were referred from, and how well patients fared.

Methods: We carried out a retrospective review of laboratory-confirmed cases diagnosed at the Institute of Viral and Emergent Pathogens Control and Research. Data were grouped into three time periods: 2011–2015, 2016–2020, and 2021–2024. We examined variables such as age, sex, education, occupation, place of residence, type of referring facility, and patient outcomes. Statistical tests were used to identify significant changes over time.

Results: Between 2011 and 2024, Edo State accounted for 71% (2,690 out of 3,795) of all confirmed Lassa fever cases in Nigeria. Over the years, the proportion of female cases increased slightly, while male cases declined (p=0.002). The number of infections in young people aged 10–19 more than doubled (p<0.0001). Cases among those with primary and secondary education rose, while those with tertiary education declined significantly (p<0.0001). Students and traders remained the most frequently affected occupations.
Geographically, Etsako West became the top hotspot for Lassa fever by 2021–2024, while some other areas like Esan West and Esan Central saw fewer cases (p<0.0001). Although overall survival has improved, the case fatality rate increased to 14% (p<0.0001).
There was a major shift in where patients were referred from: referrals from private health facilities rose sharply from 4.4% to 67.5%, and from primary health centres from 0% to 78.3%. Meanwhile, referrals from tertiary hospitals dropped (p<0.001). Within ISTH, the majority of referrals came from the emergency and outpatient departments, with ward-based referrals dropping below 2%. Admissions related to maternity care also rose slightly to 3.2%.

Conclusion: Lassa fever patterns in Edo State are changing, with more young people and lower-educated groups affected, and increasing referrals from lower-level facilities. While early detection has improved, the rising fatality

rate remains a concern. There is an urgent need to enhance public awareness, strengthen surveillance, and improve the quality of care to reduce deaths from Lassa fever.

Keywords: *Epidemiology, Lassa fever, Trends, Demographics*

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Oral 082

Pattern of Occurrence of Yellow Fever Cases and Vector Carrier Determinants of the Viral Transmission in Imo State, South Eastern Nigeria: A Case Study of 2019-2023 One Health Outbreak Response

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Introduction: Yellow Fever is an acute viral hemorrhagic disease caused by the yellow fever virus, an arthropod-borne virus (arbovirus) of the genus Flavivirus (family Flaviviridae) that has continued to pose epidemic risks in Africa despite the availability of effective vaccines. This study aimed to assess the pattern of occurrence of yellow fever cases and to determine the vector carrier driving the viral transmission in Imo, southeastern Nigeria

Method: A descriptive study was conducted using suspected yellow fever cases confirmed through IgM detection and further testing at Institut Pasteur Dakar. Adult mosquitoes, field-collected or reared from larvae, were preserved via freezing or ethyl acetate and identified morphologically using Edward (1941) and Gillet (1972) taxonomic keys. Specimens were stored in RNAlater at -20°C until testing. Sociodemographic and epidemiological data were recorded in SORMAS. Yellow fever cases were identified across all 27 LGAs based on standard definitions (fever and jaundice within 14 days). The data were exported from SORMAS and analyzed using Microsoft Excel.

Results: Among 420 suspected cases tested from January 2019 to December 2023, 7 (1.7%) were confirmed cases. 50% were male, and those aged 0-10 years, and they were all unvaccinated. All suspected and confirmed cases had high fever with jaundice. Of the 27 LGAs, 20 had at least one suspected case of unvaccinated. Among 61 households visited in the communities, there was the presence of Aedes aegypti 35%, Aedes albopictus 55%, Cx quinquefasciatus 10% of mosquito species, while Aedes species accounted for 90%, which indicates the presence of vector of yellow fever.

Conclusion: Enhanced surveillance was performed. A vector control approach should be applied in the state, and the testing laboratory should be equipped to perform integrated testing for all viral hemorrhagic fevers because all negative results met the case definition.

Keywords: *Yellow fever, Mosquito Vectors, Vector-borne disease, IgM, Flavivirus, Viral Hemorrhagic Fevers*

Enhancing Digital Disease Surveillance in the ECOWAS Region: Progress, Challenges, and Way Forward

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Introduction: Digitalizing disease surveillance improves case reporting and enables timely outbreak detection and response, enhancing health outcomes. However, adoption in Africa remains limited. This study assessed the integration of digital platforms into surveillance systems and explored health leaders' perspectives across the ECOWAS region.

Methods: A cross-sectional study with a mixed-methods sequential exploratory design was conducted. Data collection involved a desk review (2015–2023 literature, reports, grey literature), an email-based survey, and expert consultations during a 3-day regional workshop. Survey participants were heads of surveillance, data policy, and health IT (SDH) units representing human and animal health sectors in all 15 ECOWAS Member States. Legal and technical experts also contributed.

Results: Digital platform adoption was universal at the national level (100%) but only 50% at the community and lowest administrative levels, with variability across and within countries and sectors. Human health had full adoption (100%), while animal health adoption was lower (43%). DHIS2 was the most widely used platform. Human health reported higher single-platform use (73%, mostly DHIS2), compared to animal health (33%) using KoboToolbox (20%), DHIS2 (6%), and SISMAZ (7%). Key challenges included lack of interoperability and fragmented implementation. Survey and expert consensus supported establishing a harmonized data collection system and a regionally coordinated digital emergency response network, such as a regional Emergency Operations Center (EOC).

Conclusion: Despite moderate adoption, digital surveillance systems in ECOWAS remain fragmented, particularly at lower administrative levels and in the animal health sector. To improve outbreak detection and response, ECOWAS must prioritize interoperable, integrated digital systems and establish a regional data exchange framework. Leveraging emerging technologies and standardizing platforms will be essential for building a resilient and responsive surveillance architecture.

Keywords: *Digital Surveillance, Health Information System, Data Interoperability, Outbreak Management*

Epidemiology of Lassa Fever in Bauchi State, Nigeria, 2021-2024: Temporal trends and forecast

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Introduction: Lassa fever (LF) is an acute viral haemorrhagic illness caused by the Lassa virus, maintained in nature by multimammate rats. Nigeria is endemic to LF, and cases are reported throughout the year. Bauchi State in the northeast has emerged as an epicentre for LF outbreaks. Despite year-round case reporting, limited trend and seasonality analysis exist to inform timely interventions. This study applied time series modelling to describe LF trends in Bauchi from 2021 to 2024.

Methods: We conducted a retrospective analysis using 4-year LF surveillance data extracted from the Bauchi State surveillance database (2021–2024). Using Microsoft Excel, the classical multiplicative decomposition model was used to separate the time series into trend (T_t), seasonal (SV), and irregular (I_t) components: $Y_t = T_t \times SV \times I_t$. A centred moving average was used to estimate the trend, seasonal subseries averaging to derive seasonal indices, and irregularities were calculated accordingly. A one-year forecast was generated based on the trend and seasonality components.

Results: From 2021 to 2024, 2,969 suspected LF cases were reported, of which 549 (18%) were confirmed. Confirmed cases increased annually: 51 (2021), 132 (2022), 163 (2023), and 203 (2024). Using the classical multiplicative decomposition method to forecast confirmed cases, a 4% increase is projected in 2025. Case distribution by sex was at a ratio of 1:1. The age-group 20-39 years accounted for 55% of the confirmed cases, while the 0-9 years had the lowest (9%). Three LGAs, Toro (36%), Bauchi (25%), and Kirfi (23%), accounted for over 80% of confirmed cases.

Conclusion: Findings showcased the need to integrate analytical modelling into Nigeria's routine disease surveillance and response frameworks. The projected increase in LF cases for 2025 underscores the need for continuous implementation of risk communication, community engagement, environmental sanitation, and strengthened surveillance, especially in high-burden LGAs in the State.

Keywords: *Lassa Fever, Modelling, Surveillance, Time Series Analysis, Seasonality, Bauchi State*

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Oral 085

Spatiotemporal Mapping of Lassa Fever Cases in Bauchi State: Unveiling Hotspots and Trends (2023–2025 Experience)

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Introduction: Lassa fever remains a significant public health concern in Nigeria, with Bauchi State consistently ranking among the top three most affected states in Nigeria. Transmitted primarily through contact with infected rodents, the disease is more prevalent in rural areas. This study investigated the spatiotemporal distribution of Lassa fever in Bauchi State from January 2023 to May 2025 with the aim of identifying geographic hotspots, seasonal trends, and demographic risk factors for improved public health interventions.

Methods: A retrospective analysis was conducted using data from the Bauchi State Lassa Fever Treatment Centre. The dataset comprised 625 confirmed cases with variables such as age, sex, occupation, diagnosis dates, and geographical location. Descriptive statistics summarised patient characteristics, while temporal trends were examined through epidemiology week case aggregation. Spatial patterns were visualised using heatmaps and case density plots. Data analysis was performed using Microsoft Excel (2021) and Python (version 3.12.4).

Results: Of the confirmed cases, 52.6% were male, with a median age of 28 years (IQR: 19.5). High-risk groups included housewives (31.8%), farmers (21.9%), and students (14.4%). The highest burden was recorded in Toro (42.7%), Kirfi (30.4%), and Bauchi (12.5%) LGAs, with Jama'a (26.4%) and Guyaba (24.6%) wards emerging as major hotspots. A small proportion of cases originated from neighbouring Plateau (2.1%) and Taraba (1.3%) states. Peaks occurred in late 2023 (weeks 51–52), early 2024 (week 8), and early 2025 (weeks 6-7), demonstrating a consistent seasonal trend during the dry season. Heatmap analysis further demonstrated significant geographic clustering of cases in Toro and Kirfi LGAs.

Conclusion: This study identified critical hotspot areas and key risk groups associated with Lassa fever transmission in Bauchi State, offering evidence to inform targeted preventive interventions and proactive outbreak control strategies. The findings highlighted the need for early seasonal preparedness, strengthened surveillance systems, and robust inter-state coordination.

Keywords: *Lassa fever, spatiotemporal analysis, seasonal trends, geographic hotspots.*

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Oral 086

Integrating Spatiotemporal and Compartmental Modelling to Understand Lassa Fever Transmission in Nigeria

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Introduction: Lassa fever which is endemic as a zoonotic haemorrhagic fever in West Africa presents escalating public health risks to Nigeria due to its expanding geographical presence as well as inadequate reporting practices. Despite its significant burden (300,000–500,000 annual cases), gaps persist in understanding transmission dynamics and optimal interventions.

Methods: We integrated spatiotemporal and compartmental modelling using 2018–2024 NCDC prevalence data. A deterministic SEIR-SEI model with 16 parameters (7 literature-derived, 4 estimated, 5 fitted using nonlinear least squares) was used to assess transmission dynamics of the disease. Spatial analyses included Moran's I clustering and hotspot detection (Local Moran's I), while temporal patterns were evaluated through ARIMA modelling and classical decomposition. Scenario analyses compared intervention efficacies.

Results: The Next-Generation Matrix showed higher transmission potential (basic reproduction number = 1.66) than empirical estimates (≈1), highlighting the role of zoonotic/environmental factors. Sensitivity analysis revealed human transmission rate (1.0) and recovery rate (-0.73) as dominant drivers. Rodent control reduced infections three times more than healthcare improvement (61.67% vs. 16.07% reduction at 25% implementation). Spatial analysis confirmed strong clustering (Global Moran's I=0.138, p=0.027) with persistent hotspots in Edo and Delta states (p< 0.01), while spatial autocorrelation declined from 2018 (I=0.144, p=0.014) to 2024 (I=0.097, p=0.086). Temporal analysis confirmed seasonal peaks (ARIMA model fit: p=0.381) and forecasted 2025–2026 outbreaks with a peak of approximately 350 cases.

Conclusion: The study revealed that controlling Lassa fever requires integrated One Health strategies that should emphasize rodent management alongside healthcare development. Research data on spatial and temporal patterns and intervention efficiency gives public health professionals actionable insights to improve their public health response strategies.

Keywords: *Lassa fever, compartmental modelling, spatiotemporal modelling, One Health*

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Clinical and Paraclinical Correlates of Severe Lassa Fever: First Results of the Irrua Lassa Fever SEPSIS Study

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Introduction: Lassa fever (LF) is a severe zoonotic disease endemic to West Africa, with Nigeria experiencing annual outbreaks. Clinical presentation ranges from asymptomatic to severe illness, with case fatality rates exceeding 20% in hospitalized patients. Hemorrhage is uncommon, and the actual clinical pathophysiology is poorly understood. The SEPSIS study investigates whether LF triggers a hyperinflammatory response, either directly or via secondary bacterial infections, to guide therapy.

Methods: Since January 2024, adult RT-PCR–confirmed LF cases have been recruited at Irrua Specialist Teaching Hospital (ISTH), Nigeria. Bidaily study visits include clinical assessments and laboratory investigations for inflammatory and bleeding markers. Blood cultures are also obtained and analyzed if positive. Here, we present a preliminary analysis of the clinical and paraclinical outcomes of SEPSIS study patients with severe LF admitted to the intensive care unit at ISTH.

Results: As of 17 January 2025, 34(27%) enrolled patients were admitted to the ICU and included in this preliminary analysis. Mean age was 44(±16) years; 65% were male. Patients had symptoms for 12.4(±5.4) days before admission. Case fatality rate was 44%(n=15). Ribavirin was administered to 33 patients; 27 also received dexamethasone. Supportive care included transfusions(n=16), hemodialysis(n=17), and oxygen(n=23). AKI was observed in 82%; bleeding, neurological symptoms, and severe anemia were common. Inflammatory markers were markedly elevated (mean CRP:140 vs 77mg/L; mean WBC:27 vs 11 $10^3/mm^3$ in fatal vs non-fatal). Sepsis biomarkers (IL-6, PCT) also showed a pronounced elevation correlating with severity. Blood cultures were positive in 10 of 28 ICU patients; *Staphylococcus spp., E. coli, Acinetobacter baumannii* and other pathogens were detected.

Conclusion: Severe LF cases treated at the ISTH ICU showed hyperinflammation, organ dysfunction, and frequent secondary bacterial infections, sometimes with (multi-)drug-resistant pathogens. We recommend increased efforts for the development of host-directed, anti-inflammatory therapy, in addition to evaluation and treatment of secondary infections.

Keywords: *Lassa fever, pathophysiology, hyperinflammation, bleeding, secondary bacterial infection*

Epidemiological Analysis of Lassa Fever in Ebonyi State, Nigeria (2020–2025): Trends, Demographics, Symptom Patterns and Outcomes

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Introduction: Lassa fever, caused by the Lassa virus, is a significant public health challenge in West Africa, especially in Nigeria, with high incidence and case fatalities in Ebonyi State. An epidemiological assessment of Lassa fever in Ebonyi from 2020 to 2025, trends, demographics, clinical outcomes, and symptoms of laboratory-confirmed cases was conducted.

Methods: A retrospective analysis was conducted using secondary data from surveillance systems in Ebonyi State. The focus was on laboratory-confirmed cases identified through RT-PCR testing, excluding suspected cases and incomplete records. Key variables included demographics (age and sex), geographic distribution by local government areas (LGAs), temporal trends, clinical symptoms, and outcomes (recovery or death). Descriptive statistics, time-series analysis, geospatial mapping, chi-square tests, and logistic regression were employed to identify risk factors and mortality predictors.

Results: Preliminary analysis of 297 cases indicated that 2020 had the highest prevalence (31.3%). Abakaliki LGA reported the most cases (n=142), followed by Ezza North (n=35), while Afikpo North and Ishielu had the fewest (n=4). No significant gender differences were found, but age inconsistencies hindered mean/median age determination. On stratification, age group significantly influenced disease outcomes (p<0.05). CFR is 43%. Common symptoms included fever (94.3%), fatigue (80%), and abdominal pain (64%). Severe outcomes were linked to bleeding (24%) and sepsis (21.7%), with associated higher mortality rates (p<0.05). Cases peaked during the dry season (December–March), aligning with rodent-human transmission dynamics. Abakaliki, Izzi, and Ikwo LGAs were high-burden areas, highlighting the need for targeted rodent control and community awareness initiatives.

Conclusion: This study underscores the impact of Lassa fever in Ebonyi State, revealing significant seasonal, demographic, and geographic patterns. Strengthening surveillance and targeted interventions in high-risk areas are crucial for reducing transmission and improving patient outcomes. Future research should address data quality issues, especially in age reporting and environmental factors, to enhance risk stratification.

Keywords: *Lassa fever, epidemiology, Ebonyi State, symptoms, mortality, geospatial analysis.*

Persistence and Infectivity of Lassa Virus in Body Fluids: Implications for Survivor Follow-Up and Public Health

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Introduction: Lassa fever is transmitted through direct contact with bodily fluids during acute infection. However, the persistence and infectivity of Lassa virus (LASV) in body fluids post-recovery remain unclear, raising public health concerns about possible transmission from convalescent individuals. These concerns have led to stigma and discrimination in affected communities. This study investigates LASV RNA persistence and infectivity in various body fluids among survivors, aiming to inform post-discharge follow-up protocols and community health education.

Methods: A prospective longitudinal study was conducted at Irrua Specialist Teaching Hospital, Nigeria, in collaboration with the Bernhard-Nocht Institute for Tropical Medicine, Germany. Plasma, urine, saliva, lacrimal fluid, vaginal fluid, breast milk, and seminal fluid were collected from Lassa fever survivors at 0.5, 1, 3, 6, 9, 12, 18, and 24 months post-discharge. Quantitative RT-PCR was performed to detect viral RNA, and infectivity was assessed using cell culture and immunocompromised mice. A linear mixed model was used to analyze RNA persistence dynamics.

Results: At baseline, LASV RNA was detected in plasma (45%), urine (34%), saliva (5%), lacrimal fluid (9%), and vaginal fluid (21%), with viral clearance observed by month 3. However, 80% of male participants (35/44) had detectable LASV RNA in seminal fluid at baseline, with persistence up to month 12. Modeling estimated 10% of males remained positive for up to 193 days post-discharge. Infectious LASV was isolated from seminal fluid in immunocompromised mice for up to 6 months.
Conclusion: LASV RNA may persist in body fluids post-recovery, though infectivity was limited except in seminal fluid, which retained infectious potential for up to 6 months. These findings highlight the need for structured follow-up of male survivors and targeted public health education to reduce transmission risk and stigma.

Keywords: *Lassa Fever, Lassa virus, Semen, Viral Shedding, Survivors, Disease Transmission, Disease Transmission*

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Exploring the Use of Verbal Autopsy to Determine Causes of Death: Findings from the CEPI-Funded Nigeria Lassa Epidemiology (NiLE) Study

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Introduction: Reliable mortality data are essential for shaping public health responses and disease control strategies. In Nigeria, the absence of comprehensive death registration systems and limited autopsy practices hinder accurate cause-of-death documentation. Verbal autopsy (VA), which involves interviewing relatives of deceased individuals to determine probable causes of death, presents a feasible alternative in low-resource settings. This study examines the use of VA in the NiLE study across three Nigerian states.

Methods: Conducted in Edo, Ondo, and Ebonyi states with 7,041 participants recruited and followed for at least two years. Verbal autopsies were conducted after participant deaths through structured interviews with family members knowledgeable about the condition of the deceased. Data on symptoms, underlying conditions, and healthcare-seeking behavior were collected using a standardized tool and analyzed descriptively to understand mortality patterns in these Lassa fever-endemic regions.

Results: Out of 110 deaths, only 77 verbal autopsy (VA) records were completed. Among these, 14 (18.1%) met the case definition of fever plus one other symptom, though none were Lassa fever discharge cases. Most deaths (84.3%) occurred in individuals aged 41 and above. Common symptoms before death included fever (22.1%), headache (19.5%), and abdominal pain (11.7%). Only 32.4% sought hospital care before death. Hypertension and diabetes were frequently reported underlying conditions. Among the 77, 22 (28.6%) had only primary or no education, and just 2 (9.1%) of them accessed healthcare. Lower education and unemployment were linked to reduced healthcare utilization.

Conclusion: Conducting surgical autopsies in Lassa fever high-burden areas poses significant infection risks, especially in resource-limited settings. Verbal autopsy offers a safer, practical alternative for identifying likely Lassa-related deaths. Integrating verbal autopsy into routine mortality surveillance in Nigeria could improve death data accuracy and support evidence-based public health actions and targeted interventions in affected regions.

Keywords: *Verbal Autopsy, Lassa fever, NiLE, death*

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Strengthening Monkeypox Laboratory Surveillance and Response Mechanisms in Central and West Africa: A Comprehensive Scoping Review

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Introduction: Monkeypox (Mpox) is a growing public health concern in Africa, driven by its zoonotic origin and increasing human-to-human transmission. However, existing mechanisms face significant challenges that limit effective outbreak control. This scoping review maps the current landscape of Mpox surveillance in endemic African regions, evaluates the effectiveness of current strategies, and identifies key gaps needing urgent attention.

Methods: A scoping review methodology was adopted, following the guidelines recommended by Arksey and O'Malley. We conducted a comprehensive search of peer reviewed articles, grey literature, and policy reports from January 2010 to December 2022, utilizing databases such as PubMed, Scopus, and Web of Science. Studies and reports that focused on surveillance strategies, diagnostic technologies, outbreak response, and Mpox-related challenges in endemic African countries were included. In total, 25 relevant studies from six African nations, including the Democratic Republic of the Congo, Nigeria, and Cameroon, were analyzed.

Results: Mpox surveillance systems in the region suffer from major limitations such as delayed outbreak reporting, limited laboratory capacity, and weak data management systems. While some countries employed active case finding and mobile health tools, most relied on passive surveillance, resulting in delayed outbreak detection. Diagnostic capacity—especially access to PCR testing—was particularly poor in rural areas. Additional barriers included logistical constraints, poor inter-agency data sharing, and limited integration of community-based surveillance.

Conclusions: Strengthening Mpox surveillance in endemic regions requires expanded diagnostic infrastructure, integration of digital surveillance tools, and stronger community involvement. Regional and international

collaborations are critical for enhancing data sharing and coordinated responses. Addressing these gaps will improve preparedness and help prevent future public health emergencies

Keywords: *Diagnostic capacity, Laboratory infrastructure, Mpox, Monkeypox, Africa*

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Risk factors for mortality among confirmed Lassa fever cases during the 2022-2024 outbreak in Liberia: A retrospective Cohort Study

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Introduction: Lassa fever (LF) is immediately notifiable and one laboratory-confirmed case constitutes an outbreak. Since 2022, Liberia has experienced outbreaks with recorded mortality. We described the characteristics and determined risk factors for mortality among confirmed LF cases in Liberia.

Methods: A retrospective cohort study was conducted of confirmed LF cases from 2022 to 2024 in Liberia. We summarized the characteristics of cases (epidemiological, clinical and exposure) and outcome (alive/dead). Both bivariate and multivariate analysis were conducted to determine the risk factors for mortality at significance level of 95% confidence interval and p values <0.05.

Results: Of the 179 confirmed LF cases, the median age was 21 (interquartile range {IQR}11-33) years, with 70% (125) under 30 years old. Females constituted 58% (103) and 37% (66) were students. Bong and Grand Bassa Counties accounted for the highest cases, 42% (75) and 31% (55) respectively. Rodent contact (53%, 95) was the most prevalent exposure mode. Fever (86%,154), headache (70%, 125), malaise (68%, 122), and myalgia (66%, 118) were the common clinical manifestations. Ribavirin treatments were administered to 87% (156) of the cases. The case fatality rate was 30% (53). Age 30 years or older (aRR = 2.5, 96% CI: 1.152- 5.841, p = 0.021) and those not treated with ribavirin (aRR = 3.5, 96% CI: 1.289- 9.508, p = 0.014) were independent significant risk factors of mortality, while those residing in Nimba (aRR = 0.2, 96% CI: 0.095- 0.633, p = 0.003) were less likely to die when infected.

Conclusion: The risk of dying of Lassa fever is still high in Liberia. However, treatment with ribavirin and higher age provided better prognosis and outcome. We reported these findings to the NPHIL and suggested further studies on why Nimba County had better outcome.

Keywords: *Liberia, Lassa fever, risk factor, mortality, outbreak, ribavirin*

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Implementation of a nanopore genomic surveillance unit for emerging viral pathogens at the Irrua Specialist Teaching Hospital, Nigeria: experience from a synergistic collaboration

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Background: In April 2022, the Irrua Specialist Teaching Hospital (ISTH), in collaboration with the Bernhard-Nocht Institute for Tropical Medicine (BNITM), opened its nanopore sequencing facility to monitor SARS-CoV-2 variants and enhance genomic surveillance in the country. Arising from this successful setup of amplicon-based approach, the capacity gradually progressed towards implementing metagenomic nanopore sequencing in 2023. We present here the outcome and contribution to Nigeria's public health efforts to monitor SARS-CoV-2 and Lassa virus variants.

Methods: SARS-CoV-2-positive samples were sequenced using the MinION technology (Oxford Nanopore Technologies, ONT) with the amplicon-based Midnight protocol as part of ISTH surveillance diagnostics activities. Metagenomic nanopore sequencing (SISPA protocol – A and B) was performed on Lassa virus positive with a reverse transcription PCR cycle (RT-PCR) threshold value < 28 (altona Diagnostics). Basecalling, consensus building using an in-house pipeline, and phylogenetic analysis were performed in-country.

Results: Sequencing of 218 SARS-CoV-2 positive samples collected between 2020 and 2022 revealed that a majority (66% of the sequences acquired at ISTH) were from various clades of the Omicron variant (BA.1 or B.1.1.529), along with others COVID-19 sub-variants. Metagenomic sequencing of 24 Lassa virus-positive samples collected in 2024 yielded genomic recovery ranging from 73.25% to 99.79% for the S segment, and from 52.81% to 99.82% for the L segment. Phylogenetic analysis classified these sequences within lineage II of Lassa virus, which is the dominant clade circulating in Edo State.

Conclusion: The establishment of the sequencing laboratory at ISTH has significantly strengthened Nigeria's genomic surveillance capabilities. Despite challenges such as power interruptions, limited funding, and equipment and computational biology infrastructure constraints, the laboratory's ability to sequence SARS-CoV-2 and Lassa virus underscores its potential for effective viral monitoring and transmission tracking.

Keywords: *Genomic Surveillance, Lassa fever, SARS-CoV-2, Public Health*

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Implementation of dengue epidemiological surveillance in the Golfe Health District of Togo, 2024: Barriers and facilitators

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Introduction: Dengue is a viral disease transmitted by Aedes mosquitoes. The 2024 epidemic in Togo highlighted the challenges of epidemiological surveillance and the need to improve monitoring and response mechanisms. The aim of our study was to assess the performance of dengue epidemiological surveillance implementation in the Gulf Health District (DS) in 2024.

Methods: The study adopted a mixed-methods approach to evaluate the performance of the dengue surveillance system from August 2024 to April 2025. Data were collected from district health facilities and stakeholders involved in surveillance. The evaluation was based on three dimensions: structure, process and results.

Results: Among 133 suspected cases of dengue fever, the most frequent symptoms were fever and headache. The Varkevisser scale was used as a reference for the performance score. Our study showed a low overall performance of 38.5%. Confusion between dengue fever and malaria complicated diagnosis. Although health professionals had a good knowledge of dengue fever, the lack of standardization of surveillance and response procedures limited the application of national guidelines.

Conclusion: The study revealed several weaknesses in the dengue surveillance system due to a lack of budget allocation, inadequate training of health workers and a lack of motivation on the part of health workers. Efforts must be made to improve this surveillance.

Keywords: *Dengue fever, epidemiological surveillance, Gulf district, Togo, case notification*

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Investigation autour des cas probables et confirmés de la maladie à virus Ebola dans la préfecture de N'Zérékoré en Guinée

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Introduction : En 2013, N'Zérékoré fut l'épicentre de la plus grande épidémie d'Ebola en Guinée, avec 3 811 cas confirmés et 2 543 décès (létalité 67 %). Le 13 février 2021, un nouveau cas y a été signalé, déclenchant une nouvelle flambée. Une investigation a été lancée pour évaluer la situation et déployer des mesures de riposte appropriées.

Méthodes : Une étude descriptive d'incidence a été réalisée du 16 février au 29 mai 2021. Les cas ont été définis selon les critères du SIMR. Les données sur les cas et contacts ont été recueillies via Dhis2 et la base des alertes. Les variables ont été analysées avec Epi Info 7.2.

Résultats : Sur 1 878 alertes validées et 657 décès notifiés, 23 cas de MVE ont été confirmés (16 en laboratoire et 7 probables). On a enregistré 12 décès (létalité de 52 %). L'âge médian des cas était de 45 ans [22–75 ans], dont 26 % étaient des agents de santé. Les signes cliniques les plus fréquents étaient la fièvre (ou notion de fièvre) et une fatigue intense (87 % chacun). Le taux d'attaque global était de 5 pour 100 000, avec des pics chez les personnes de plus de 64 ans (43/100 000), les femmes et les habitants de Gouécké (21/100 000) et Soulouta (15/100 000). Parmi les 1 110 contacts identifiés, 92 % ont été suivis et 91 % vaccinés. Les pratiques funéraires et alimentaires locales ont favorisé la propagation. La source du cas index demeure inconnue.

Conclusion : La rapidité du suivi et de la vaccination a permis de maîtriser la flambée. Il est crucial d'identifier la source du cas initial pour éviter de nouvelles épidémies.

Mots clés : *MVE, Ebola, épidémie, N'Zérékoré*

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Incidence of symptomatic Lassa fever infection in endemic communities: results from the ENABLE 1.0 prospective cohort in Edo State, Nigeria.

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Introduction: Lassa fever (LF), a viral zoonotic disease endemic to West Africa, often causes no or mild, non-specific symptoms, but severe cases can result in haemorrhage, multi-organ failure, and death. Its burden remains poorly defined, yet, is essential for guiding vaccine trials. Here, we report on symptomatic LF incidence in a Nigerian site of the Enable Lassa research programme.

Methods: A prospective community-based longitudinal cohort enrolled participants ≥2 years old in Edo State, Nigeria, from 2020. Participants were followed up for 30 months and monitored for acute febrile illness through active/passive surveillance. Participants meeting the acute febrile case definition were tested for LF by RT-PCR using acute blood samples. LF positive cases were hospitalised with hearing assessed at discharge and four months post-discharge to determine sensorineural hearing loss (SNHL).

Results: Of 5,025 participants recruited, 3,543 suspected LF cases were assessed, with 23 confirmed by RT-PCR, yielding an overall incidence of 1.90 (95%CI 1.20–2.85) per 1,000 person-years. Symptoms included headache (91%), abdominal pain (83%), muscle/joint pain (57%) and vomiting (35%). Two cases were fatal (CFR 9%). Nine of 21 (43%) LF cases with hearing tests performed had SNHL at discharge, increasing to 13 at four months follow up.

Conclusion: The LF incidence and symptoms data from the cohort reveal critical insights into disease burden, location, and long-term impact.

Keywords: *Lassa fever incidence, disease burden, active surveillance, RT-PCR*

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Uncovering the hidden burden of Lassa fever through post-mortem mortality surveillance in Sokoto state, Nigeria, 2024-2025.

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Introduction: The true burden of *Lassa fever virus (LASV)* mortality in Northern Nigeria is often obscured by challenges in surveillance, leading to underreporting and hindering effective public health responses. To address this, we set out to determine the hidden burden of *LASV* using post-mortem mortality surveillance in Sokoto state, Nigeria.

Methods: We established a post-mortem mortality surveillance system in two referral hospitals in Sokoto state, Nigeria. Between April 2024 to May 2025, we enrolled decedents (all ages) with documented fever (axillary temperature ≥38.0 Degrees Celsius) and collected data through caregiver interviews and medical records review. We tested blood for *LASV,* and *dengue virus (DENV)* using RT-PCR, and *Plasmodium falciparum (PF)* using microscopy and rapid diagnostic tests. We used frequencies, proportions, and maps to describe decedents. Ethical clearance was obtained.

Results: Of 485 decedents enrolled, the median age was 25 (IQR: 7-40) years with children ≤ 16 years of age accounting for 32.2% (n=156) of the cohort. Slightly more than half were female (51.1%, n=248) and 23.7% (n=115) had underlying medical conditions. Most deaths (79.3%, n=384) occurred within four days of fever onset. Presumptive diagnoses often included malaria or sepsis (55.1%, n=267). Preliminary data on 365 decedents identified 11 (3%) LASV infections, 121/359 (33.7%) with PF, and 1/365 (0.3%) with DENV infection; of the 11 LASV infections, three (27.3%) had PF coinfection. Only 25.1% (52/207) of those who tested positive for PF had received a prior presumptive diagnosis of malaria (or sepsis) before death, whereas 44.2% (88/199) of those who tested positive for PF were not suspected clinically.

Conclusion: Post-mortem mortality surveillance identified Lassa fever, dengue, and malaria deaths missed by conventional surveillance in Sokoto. Integrating post-mortem surveillance can provide a comprehensive understanding of the causes of febrile deaths which can inform preparedness efforts.

Keywords: *Mortality, Post-mortem examination, Public Health Surveillance, Viral Hemorrhagic Fevers, Lassa Fever, Malaria.*

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Oral 099

Epidemiological Trend of Lassa Fever in Nigeria from 2015-2024

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Introduction: Lassa fever remains a significant public health challenge in Nigeria, with recent outbreak revealing the need for new strategy to control and prevent the disease transmission. It is characterized by recurring outbreaks with high morbidity and mortality rates. It is endemic in several West African countries and is primarily transmitted through contact with Lassa virus on excreta of infected *Mastomys* rats. This review aims to explore a comprehensive overview of the epidemiological trend, current situation and offers strategic recommendations for mitigating future outbreaks.

Methods: A retrospective analysis of epidemiological data of the burden of Lassa fever from 2015 to 2024 was conducted using data from the Nigeria Centre for Disease Control and Prevention (NCDC) website and other relevant sources to understand the epidemiological trend of the disease. Key variables analysed included demographic characteristics, geographical distribution, seasonal trends, and case fatality rates. The analysis was done using descriptive statistics.

Results: A total of 49,480 suspected Lassa fever cases were tested, out of which 7080 (14.3%) cases were laboratory confirmed in 29 states. Case fatality rates were between 9.3% and 27.0%. Predominant age group affected was 21 to 30 years with a male to female ratio of 1.1:1. Median age was 31 years, and age range was between 0 and 98 years. Edo, Ondo, Taraba, Ebonyi, Bauchi, Plateau and Nasarawa states were most affected yearly. Lassa fever cases increased from 25 confirmed cases in 2015 to 1,309 in 2024. Yearly incidence of the disease peaked between weeks 1 and 13, with a sharp decline towards the middle of year.

Conclusion: Lassa fever remains a significant public health concern in Nigeria, with rising incidence and high fatality rates. Targeted interventions are needed in hotspot states such as Edo, Ondo, and Taraba. Enhanced surveillance, early detection, and public health education should be prioritized.

Keywords: *Lassa fever, case-definition, suspected case, confirmed case, case fatality rate.*

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Oral 100

Risk Factors Associated with Lassa Fever Infection During the 2025 Outbreak in Ondo State, Nigeria

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Introduction: Lassa fever (LF) is a viral hemorrhagic illness predominantly found in West Africa. Nigeria particularly experiences a high incidence, especially during the first 12 weeks of the year. The 2025 outbreak reflects ongoing, sustained transmission observed in 2024, posing a significant public health threat in Ondo State and beyond. We investigated risk factors for LF during the 2025 outbreak in Ondo State, Nigeria.

Methods: We conducted a descriptive and case-control study using a semi-structured questionnaire and laboratory analysis to assess LF cases and identify infection risk factors from December 31, 2024, to April 16, 2025. Key variables included demographics, knowledge and behavior, exposure history, and environmental factors. We enrolled 74 confirmed LF cases from the line list along with 142 controls. Cases were individuals with RT-PCR-confirmed LF; controls had no LF symptoms in the past three weeks and lived near a confirmed case. We performed conditional multiple logistic regression analysis.

Results: Of the 489 suspected LF cases reported across eight LGAs, 140 were laboratory-confirmed, with 19 deaths (case fatality rate: 13.6%). Mean ages of cases (37.9±14.5 years) and controls (35.2±12.3 years) were comparable. Females represented 48.6% of cases and 50.0% of controls. Participants who did not dry food materials in open spaces were less likely to contract LF than those who did (AOR= 0.02; 95% CI = 0.00-0.39). Participants who did not use face masks and hand gloves were more likely to contract LF than those who did (AOR= 3.86; 95% CI= 1.16-12.87) and individuals living in rural villages were less likely to contract LF compared to those in urban areas (AOR= 0.17; 95% CI = 0.07-0.41).

Conclusion: The findings highlight the need for focused public health efforts in Ondo State, emphasizing safe food handling, use of protective equipment, and increased awareness in urban areas to reduce LF transmission.

Keywords: *Lassa fever, Risk factors, Case-control study, Ondo State, Personal protective equipment (PPE), Food storage practices*

Incidence of disease and seroprevalence of infection due to Lassa Virus in Benin

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Introduction: Lassa fever (LF) is a re-emerging zoonotic infectious disease caused by an Old-World *arenavirus*, Lassa virus (LASV) and endemic in West Africa. So far, less is known about the disease and epidemiological data are still scarce. Herein we estimated the incidence of disease and the seroprevalence of the infection due to LASV in the Northern part of Benin.

Method: Between July,2021 and December,2023, a multisite prospective cohort study was conducted in the districts of Parakou, Tchaourou and Natitingou. Households were randomly selected and followed up for 18 months in LF disease cohort and LASV infection cohort. Questionnaires were administered and blood samples were collected from selected household inhabitants to estimate the immunoglobulin G (IgG) LASV seroprevalence. LF disease cohort participants were drawn to test for active LASV infection in case of acute febrile. LASV infection cohort participants were asked for a blood sample every six months to assess LASV seroprevalence (IgG).

Results: A total of 5,129 participants were recruited in the disease cohort, from which 1,130 participants were subsequently enrolled in the infection cohort. The median age was 18 years (SD=18.04) for the disease cohort, 19 years (SD=18.47) for the infection cohort and the sex ratio (H/F) was 0.90 (2430/2699). At Baseline, global positive IgG seroprevalence was 2.21% (99/4488). In disease cohort, 02 LF cases were detected RT-PCR positive. All detected cases survived after the treatment with Ribavirin, and one had sensorineural hearing deficit as sequelae. In the infection cohort, at 6- and 18-months follow-up, IgG seroprevalence were 1.41% (13/919) to 1.02% (8/783) respectively.

Conclusion: Our data suggested that the LF is endemic in the Northen part of Benin. The Beninese health authorities must review the surveillance and diagnostic strategies of Lassa fever throughout the country, which need more attention in the eastern part of the country.

Keywords: *Lassa fever, Incidence, seroprevalence, sensorineural hearing deficit*

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Oral 102

Assessing the effectiveness of Lassa Fever contact tracing in Nigeria: A five-year trend analysis (2020–2024)

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Introduction: Lassa fever remains a major public health challenge in Nigeria. Effective contact tracing is essential for early case identification, timely isolation, and outbreak containment. However, its implementation has faced notable challenges. This study analyzed five years (2020–2024) of national surveillance data to evaluate the performance of contact tracing and its role in detecting secondary Lassa fever cases, with the goal of informing future strategies.

Methods: A retrospective descriptive analysis was conducted using Microsoft Excel on data from Nigeria Centre for Disease Control (NCDC) Lassa fever situation reports (2020–2024). The population included all contacts listed from confirmed cases. Key indicators assessed were: number of confirmed cases, contacts listed, contacts completing follow-up, symptomatic contacts, confirmed secondary cases, and contacts lost to follow-up. Descriptive statistics were applied to observe performance trends and implementation gaps.

Results: Between 2020 and 2024, there were 5,297 confirmed Lassa fever cases and 25,929 contacts listed. Of these, 24,824 (95.7%) completed follow-up. A total of 492 (1.9%) developed symptoms, and 199 (0.77%) were confirmed positive. While follow-up completion improved reaching zero losses in 2023 contact positivity rates remained consistently low and declined over the years. Losses to follow-up re-emerged in 2024, reflecting ongoing operational challenges and limiting the overall effectiveness of detecting secondary transmission.

Conclusion: Despite high follow-up completion, Lassa fever contact tracing in Nigeria shows limited success in identifying symptomatic and positive secondary cases, a critical gap for public health. Urgent implementation of targeted interventions, enhanced surveillance training, are crucial to strengthen contact tracing and reduce Lassa fever transmission.

Keywords: *Lassa fever, Contact tracing, Surveillance, Nigeria, Outbreak response, public health.*

Age-Specific Seroprevalence Trend of Anti-Lassa Virus Antibodies: A Prospective Cohort Study in Owo, Ondo State, Nigeria

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Introduction: Lassa fever infection is endemic in West Africa, and it commonly occurs in human when there is an exposure to infected excreta, urine or remains of Mastomys natalensis. Pattern of Lassa fever virus (LASV) epidemiological behavior is essential for development of appropriate targeted intervention through vaccine, hence this study aimed at determining the age-specific serological prevalence among a prospective cohort in Owo, Ondo state, Nigeria.

Method: This was a 24-month prospective cohort study conducted in Owo Local Government Area in Ondo State. Samples were collected from 1009 enrolled participants at 6 monthly interval of 0 (baseline), 6, 12, 18 and 24 months following informed consent. The samples were analyzed for anti-Lassa virus (anti-LASV) IgG using ELISA.

Results: The seroprevalence of anti-LASV IgG of the participants was 35.1% at baseline which slightly increased to 37.0% at 24th month and the overall average seroprevalence was 39.1%. The seroprevalence was lowest for age group 5 year and below with 19.1% at baseline and steadily increased to the highest above other age groups to 74.6% at 6 months after which it dropped to 29.6% at 12 months below other age groups, and minimally increased but remained below other age groups to 32.4% at 24 months. Age 50yrs and above had the highest seroprevalence (43.2%) at baseline and remained fairly constant till month 24 when it decreased to 39.7%. The seroprevalence of other age groups were almost constant through the study. The seroconversion risk from the baseline was 10.1%.

Conclusion: As reported in this study, the understanding of anti-LASV IgG seroprevalence and its age-specific trend in an endemic community with regular annual outbreaks is crucial in determining the feasibility, effectiveness and strategic planning of appropriate vaccine-intervention programs for Lassa fever infection control.

Keywords: *Lassa fever, Age-Specific, Seroprevalence, Anti-Lassa virus IgG*

Evaluation of Lassa fever surveillance system in Kogi State, North-Central Nigeria

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Background: Lassa fever, a viral hemorrhagic disease endemic in West Africa, remains a major public health concern in Nigeria, with 10,098 suspected cases, 1,309 confirmed, and 214 deaths reported across 28 states and 139 Local Government Areas (LGAs) in 2024. Kogi State, an important route linking the north to the south of Nigeria, ranked fourth in confirmed cases in 2021. Surveillance system evaluations are critical for informing disease control and assessing performance. This study evaluated the Lassa fever surveillance system in Kogi State to assess its key attributes.

Methods: In March 2024, a mixed-methods evaluation was conducted, guided by the Centers for Disease Control's updated public health surveillance evaluation guidelines. Surveillance data from 2022–2023 were analysed using the state line list. Key informant interviews were held with 18 Local Government Area Disease Surveillance and Notification Officers (LGA DSNOs) and four state-level stakeholders. System attributes such as simplicity, flexibility, data quality, and acceptability were assessed using descriptive statistics. Ethical approval was obtained from the Kogi State Ministry of Health.

Results: The response rate among DSNOs was 85.7%, with participants averaging 47.9±7.2 years of age and 23.8±5.9 years of service. Data revealed 112 suspected Lassa fever cases, 38 confirmed (33.9% positivity), and 12 deaths, indicating a case fatality rate of 31.6%. Most respondents (94%) had dedicated personnel for data verification. The system was largely viewed as simple and flexible, with 88.9% reporting the forms could accommodate changes. Despite challenges with logistics and funding, participants expressed continued commitment to the system.

Conclusions: Kogi State's Lassa fever surveillance system is effective, demonstrating simplicity, acceptability, and flexibility. However, challenges in stability and resource availability may limit long-term performance. Strengthening the system through improved funding, continuous training, and staff incentives is recommended to enhance sustainability and effectiveness in Lassa fever detection and response.

Keywords: *Lassa fever, public health surveillance, programme evaluation, health information system, Nigeria*

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Oral 105

Outbreak of Dengue fever in Ghana: The emergence of DENV-1 serotype

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Introduction: Dengue, a mosquito-borne virus continues to be a public health concern in the tropics and subtropical parts of Africa. Due to the increase of urbanization, climate change and trans-Atlantic trade, the transmitting vector, Aedes aegypti, has become prevalent hence the rapid growth of the disease, globally. In Ghana, there have been sporadic laboratory-confirmed cases of Dengue reported over the years through surveillance activities. However, despite the detection of these cases, Ghana had never experienced a major outbreak (unlike its neighboring countries) until July 2024.

Methods: During this outbreak, a total of 1471 suspected Dengue fever specimen received from various health facilities in Ghana in NMIMR for molecular diagnostic testing using a RT-qPCR assay for Dengue, Chikungunya and Zika viruses and selected positives sequenced using Illumina Next Generation Sequencing.

Results: Dengue fever virus RNA was detected from 206 samples and serotyped as DENV-1 with one DENV-3 coinfection. Thirty-nine genomes were successfully generated after sequencing and phylogenetic analysis of DENV-1 strains revealed two main clusters with AFI isolates in Ghana and isolates from other West African countries (Côte d'Ivoire, Burkina Faso, Benin, and Senegal) circulating between 2017–2019. In 2023, DENV-1 was frequently isolated which could account for it being the predominant serotype transmitted in the recent outbreak.

Conclusion: The outbreak response and the case management procedures deployed by the health authorities during this outbreak were swift and was enough to prevent a fatal difficult-to-control situation. With the absence of a widely accepted commercialized vaccine and treatment for Dengue fever, there is a need to enhance surveillance activities and control the vectors which can transmit DENV in-country to curb the occurrence of outbreaks.

Keywords: *Dengue, Ghana, Outbreak, serotype, DENV-1*

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The Digital Epidemic Shield: Revolutionizing Lassa fever Preparedness with Predictive Analytics

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Introduction: Lassa fever is a critical public health concern in West African due to its high prevalence, frequent outbreaks, significant morbidity and mortality. Lassa fever poses a serious threat in endemic regions, particularly in Nigeria, Sierra Leone, Liberia and Guinea. This study used real-time data analytics, geospatial mapping and machine learning to detect and forecast the early stages of Lassa fever outbreaks.

Methods: A retrospective observational study using epidemiological data, environmental information and boundary data were taken from public sources. To spot clusters and map cases, spatial analysis was done in R. Weekly case incidence was forecast using Random Forest and Generalized Additive Models by examining historical data and weather variables. A Shiny dashboard linked to GIS technology was arranged to give users the ability to explore risk data interactively and in real time.

Result: The study enhance the identification of Nigerian states and Local Government Areas (LGAs) with recurrent Lassa fever outbreaks, consistent with patterns observed in prior literature. States such as Edo, Ondo, Ebonyi, Bauchi, and Taraba continue exhibiting the highest infection rates. Within these states, LGAs including Esan West and Oredo (Edo State), Owo and Akure South (Ondo State), and Abakaliki (Ebonyi State) emerge as persistent hotspots. The predictive models demonstrate strong accuracy in forecasting new Lassa fever cases, particularly when environmental variables such as rainfall and temperature are integrated ($p < 0.01$).

Conclusion: Predictive analytics and GIS offer rapid, localized insights into epidemic progression, enabling scalable early warning systems in resource-limited settings. Integrating real-time data and environmental variables enhances forecasting accuracy for Lassa fever. An interactive geospatial platform supports targeted interventions by visualizing high-risk areas. Strengthening LGA-level reporting and upgrading diagnostic infrastructure will improve timely response and outbreak control.

Keywords: *Lassa fever, Predictive Analytics, Geographic Information Systems (GIS), Epidemic Forecasting, Geospatial Mapping, Infectious Disease Modeling*

Forecasting Lassa Fever Risk to Enable Smarter, Targeted Interventions

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Introduction: Lassa fever poses a growing public health threat across West Africa, with outbreaks shaped by complex ecological and socio-environmental dynamics. Delays in detection limit the effectiveness of reactive responses. In collaboration with national and international partners, we developed the **Sentinel Forecasting System**: An open-source platform integrating nowcasts and short-term monthly forecasts to support anticipatory public health action, including vaccine trial planning and outbreak preparedness.

Methods: Sentinel combines ecological models of *Mastomys natalensis* habitat, remotely sensed environmental data (e.g. rainfall, vegetation), population and mobility layers, and surveillance data from Nigeria (2012–2023). A Bayesian hierarchical spatiotemporal model generates nowcasts and monthly forecasts. Outputs informed modelling of routine and reactive vaccination strategies across Nigeria and West Africa, including estimates of vaccine impact, demand, and stockpiling needs.

Results: Sentinel accurately captured seasonal and interannual shifts in risk. Vaccine effectiveness modelling found that routine vaccination before the Lassa season (August–November) could avert up to 70% of severe cases, compared to ~25% with outbreak response starting in January. Targeting high-incidence or environmentally suitable areas offers substantial impact with feasible coverage. Ecological models identified broader spillover zones across West Africa; routine vaccination in these areas or stockpiling (e.g. 1M doses for pregnant people, 35,000 for healthcare workers) would improve protection in hard-to-reach regions.

Conclusion: By integrating diverse data streams into real-time forecasts, Sentinel enables more proactive and targeted Lassa fever interventions. The approach supports smarter decision-making for vaccine trial planning, surveillance, and response. Next steps include regional scale-up and embedding Sentinel within national public health systems.

Keywords: *Lassa Fever, Forecasting, Vaccination, Zoonoses, Risk Assessment, Public Health Surveillance*

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Oral 108

Equipping Healthcare Providers with Accurate Lassa Fever Information Through a Digital SBC Campaign

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Introduction: Lassa fever, a viral hemorrhagic illness endemic to West Africa, continues to challenge public health efforts in Nigeria. Misinformation about its prevention and management, especially on platforms like WhatsApp, undermines effective responses. Healthcare providers (HCPs), who serve as trusted sources of health information, play a critical role in controlling disease spread but remain vulnerable to misinformation. Digital interventions that target HCPs can strengthen their ability to combat false information.

Methods: In 2022, Breakthrough ACTION-Nigeria launched a six-month digital SBC campaign in Bauchi, Sokoto, and Oyo states. Partnering with 28 medical associations and health agencies, the campaign trained HCPs on content creation, audience engagement, and social media strategies. It delivered messages about Lassa fever symptoms, transmission, prevention, and response via Facebook, Twitter, Instagram, and WhatsApp. The campaign also established a WhatsApp community of practice to facilitate peer support and real-time information sharing. We tracked campaign performance through metrics such as audience reach, engagement, and referrals to the Nigeria Centre for Disease Control and Prevention (NCDC) website.

Results: The campaign created twenty Facebook pages for professional associations, sharing 175 posts, 104 of which were promoted with ads. It reached over 10.3 million individuals on Facebook between May and September 2022. Additionally, 2,950 HCPs actively participated in the WhatsApp community, many of whom became advocates for accurate Lassa fever information within their networks.

Conclusion: This campaign shows that providing HCPs with accurate, locally relevant content through digital platforms can effectively counter misinformation. Incorporating digital engagement strategies should be a key component of future Lassa fever preparedness and response efforts.

Keywords: *Digital Media, Social Media, Social Media Campaigns, Healthcare Workers, Lassa Fever*

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AI-Driven Early Diagnosis of Lassa Fever: Development of an XGBoost-Based Predictive Web Application

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Introduction: Lassa fever, a viral hemorrhagic disease endemic to West Africa, poses a serious public health threat due to high fatality rates, diagnostic delays, and nonspecific symptoms. In over 70% of confirmed cases, diagnosis occurs after Day 6 of symptom onset, often when complications have already developed (Nigeria Centre for Disease Control, 2021).

Methods: A simulation-based approach using supervised machine learning was applied. A synthetic dataset of 10,000 pseudopatients was generated, modeling real-world clinical symptoms and physiological indicators from Lassa fever-endemic populations. Each record was labeled as either 'positive' or 'negative' based on a predefined risk scoring algorithm. The dataset was split into training (80%) and testing (20%) subsets. Four Machine learning models: Logistic Regression, Random Forest, Support Vector Machine, and XGBoost were trained and evaluated using accuracy, precision, recall, and F1-score.

Results: Out of 10,000 pseudopatients, 4,873 (48.73%) were classified as Lassa fever positive. Among all models, XGBoost demonstrated the best performance: 94.80% accuracy, 94.50% precision, 95.20% recall, and 94.85% F1-score. This model was selected for deployment in a web-based early diagnostic system.

Conclusion: Machine learning integration into frontline health systems can significantly enhance early detection, reduce diagnostic delays, and improve outbreak response in Lassa fever-endemic regions.

Keywords: *Lassa fever, machine learning, XGBoost, digital health, early diagnosis, surveillance, predictive model*

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Oral 110

Hotspot Mapping and Vulnerability Assessment to Support Participant Recruitment for the CEPI ENABLE 1.5 Lassa Fever Prospective Cohort Study in Edo State, Nigeria

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Introduction: Careful selection of recruitment areas is essential for representative sampling in epidemiological research. The ENABLE 1.5 muti-country study aims to assess malaria and Lassa fever (LF) co-infection and LF severity scoring. Prior to the study commencement in Edo State, Nigeria, a mapping exercise was conducted from December 2023 to June 2024 to define the sampling area. This paper outlines the methodology for selecting study sites for participant recruitment.

Methods: LF case data from 2020 to 2023 were retrospectively analyzed to identify three high-burden Local Government Areas (LGAs). In collaboration with Disease Surveillance and Notification Officers and community liaison officers, three settlements per LGA were shortlisted based on cumulative case counts, accessibility, previous research presence, mapping feasibility, and insights from ENABLE 1.0. One settlement per LGA was selected for detailed mapping and divided into quarters for micro-level analysis.
Index case addresses were georeferenced and validated against ward boundaries. Field teams verified occupancy status and collected GPS coordinates, which were plotted on high-resolution satellite imagery using Google Earth to generate preliminary hotspot maps.
A standardized checklist was used to assess environmental and socioeconomic vulnerability across quarters. Key indicators included housing condition, sanitation, food storage, fencing, road access, and proximity to refuse sites or rodent habitats. Each quarter received a composite vulnerability score. In each settlement, the quarter with the highest combined LF case density and vulnerability score was designated as the recruitment cluster. Household enumeration documented structure counts and population data disaggregated by age and sex.

Results: Four recruitment clusters were identified. Enumeration of 2,026 households yielded 12,471 individuals. Frequent vulnerabilities included poor housing, unprotected food drying, and unregulated waste disposal. Spatial analysis revealed strong overlap between vulnerability hotspots and LF case clusters.

Conclusion: This integrated mapping approach effectively identified high-risk zones to guide targeted recruitment and intervention for ENABLE 1.5.

Keywords: *Geospatial analysis, Lassa fever, Hotspots, Vulnerability*

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Oral 111

Vaccines Against Lassa fever virus (VITAL): Phase 1 safety and immunogenicity studies of a Lassa fever vaccine, ChAdOx1 LassaJ, in healthy volunteers in the UK and Ghana

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Introduction: Lassa fever is a leading cause of viral haemorrhagic fever in West Africa, affecting 59 million people, with up to 500,000 infections and 5,000 deaths annually. Infection during pregnancy poses severe risks to mothers and unborn babies. Survivors may suffer hearing loss or long-term neurological sequelae. No licensed treatment or vaccine exists. ChAdOx1 LassaJ, a simian adenoviral vectored vaccine encoding the Lassa virus glycoprotein, demonstrated immunogenicity and protection from viral challenge preclinically. We will evaluate the safety and immunogenicity of 5×10^{10} vp of ChAdOx1 LassaJ in Phase 1, healthy volunteer trials.

Study design: Subject to approvals, healthy adults (18–55 yrs) will be recruited to separate Phase 1 trials in the UK and Ghana. The UK trial will enrol an initial open-label cohort (n=6) receiving two doses of ChAdOx1 LassaJ 12 weeks apart, and a subsequent blinded second cohort (n=20) will be randomised 4:1 to receive 2 doses of ChAdOx1 LassaJ or placebo at a 12-week interval. We anticipate following a similar trial design in Ghana, but the blinded second cohort aims to compare a single dose of ChAdOx1 LassaJ to a prime boost regime, again with a placebo comparator. Safety data from both trials will be reviewed by an independent data and safety monitoring board.

Progress: Regulatory submissions are underway and both studies are projected to commence enrolment from Q3 2025. The primary objective is safety and tolerability post vaccination. Secondary objectives include vaccine induced humoral and cellular immune responses, with assays conducted at both sites. One and two dose schedule data will inform outbreak and routine immunisation policy in West Africa.

Conclusion: These first in-human trials will provide critical data for vaccine development, inform outbreak and routine immunisation policy in West Africa and strengthen research capacity at trial sites.

Keywords: *Lassa Fever, ChAdOx1 LassaJ, Vaccine, Phase 1 trial, Immunogenicity, Safety, Adenoviral vector, UK, Ghana*

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Oral 112

Sociocultural and Environmental Risk Factors Sustaining Lassa Fever Transmission in Endemic Communities of Edo State, Nigeria: Implications for Targeted Prevention Strategies.

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Introduction: Lassa fever remains a significant public health threat in West Africa. Edo State, Nigeria, is a hyperendemic region, ranking second nationally in case burden, with seasonal case fatality rates exceeding 15%. Despite annual response efforts, outbreaks continue to occur, suggesting that sociocultural, behavioural and environmental drivers remain inadequately addressed. This study, commissioned by the Edo State Ministry of Health in collaboration with the Lassa Fever Incident Management Team, explored the risk factors sustaining Lassa fever transmission in most affected communities.

Methods: A cross-sectional mixed method study was conducted between March and July 2024 in 11 high burden communities across three local government areas in Edo State, selected through a multistage sampling process. Structured interviewer administered questionnaires captured data on sociodemographic characteristics, sociocultural, behavioural practices, environmental conditions, and rodent exposure pathways. Physical inspections of homes and surroundings were conducted using standardized checklists. Data analysis was performed using SPSS version 21.0.

Results: Of 422 individuals approached, 331 consented to participate (response rate: 78.4%). Respondents were predominantly female (68.3%), married (70.7%), had attained secondary education (54.1%), and engaged in small-scale business (45.3%). Rodenticides were the most used rodent control method (81.3%), although only 65.4% considered them effective. Behavioural risk factors included widespread consumption of water-soaked Garri (80.7%) and bushmeat (19.6%). Open-air food drying was mentioned by 38 (11.5%) respondents. Environmental risks included cracked housing structures (36.7%) and refuse accumulation near dwellings (32.8%). Sociocultural exposures included contact with individuals who died of undiagnosed illnesses (5.0%) and with haemorrhagic symptoms (7.3%).

Conclusion: Lassa fever transmission is sustained by behavioural, environmental, and sociocultural risk factors. To effectively prevent outbreaks, urgent action is needed through integrated, context-specific interventions, including improved environmental sanitation, targeted behavioural change interventions and appropriate risk communication strategies to disrupt transmission pathways and achieve long-term outbreak prevention.

Keywords: *Lassa Fever, Outbreak, Risk factors, Response*

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Oral 113

Understanding gender dynamics, consent experiences, and community engagement in clinical trials in the context of a Lassa Fever Vaccine Trial in Ghana

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Introduction: Clinical trials often overlook social dynamics that influence participant experiences and outcomes. Gender affects research participation, with men and women approaching clinical trials differently due to social, cultural, and personal factors. A recent Phase 1 study in Kintampo districts, Ghana highlighted this challenge, with only one woman among 18 participants consenting to join. Traditional text-based consent may present varying accessibility across participant groups, and alternative approaches like audio-visual methods could enhance understanding. The Lassa vaccine trial (ViTaL02), a Phase 1 study, will evaluate the safety and immunogenicity of ChAdOx1 LassaJ among healthy volunteers. This study provides an opportunity to examine gender dynamics, consent experiences, and community engagement to improve clinical trial implementation through a social science study running concurrently.

Methods: This exploratory mixed-methods study examines gender dynamics, consent experiences, and stakeholder engagement within the ViTaL02 trial in the Kintampo districts of Ghana across three phases. Phase 1 assesses existing gender-related factors and evaluates three information delivery methods (textual, audio-visual, combined text-pictorial). Phase 2 explores participant lived experiences. Phase 3 will focus on post-trial analysis and policy implications. Data collection will aim to include 71 in-depth interviews, 6 focus group discussions, 120 information delivery surveys, and 30 participant observations using pragmatic and purposive sampling to ensure gender representation.

Results: Submissions for scientific and ethics reviews are imminent in Kintampo Health Research Centre, Ghana and Oxford University, UK. The study is expected to start in the last quarter of 2025. This study will generate insights into gender-specific experiences and evaluate the effectiveness of different consent approaches in the context of the Lassa vaccine trial.

Conclusion: This study will inform recommendations for improving participation in clinical trials, community engagement, improving trial design, and developing effective dissemination strategies for policy stakeholders in sub-Saharan Africa and similar settings.

Keywords: *Gender, Consent Experiences, Community Engagement, Lassa Clinical Trials, Ghana*

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Oral 114

Vaccination intentions, readiness, and preferred attributes of a future Lassa fever vaccine among staff at a tertiary hospital in Edo State, Nigeria: a cross-sectional survey.

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Introduction: Lassa fever (LF), a viral hemorrhagic illness endemic to West Africa, poses significant risks to healthcare workers (HCWs) due to occupational exposure. Nigeria bears the highest LF burden, making HCWs a priority group for vaccination. However, vaccine hesitancy may undermine uptake. This study assessed readiness, intention, and product preferences regarding a future LF vaccine among staff at Irrua Specialist Teaching Hospital.

Methods: A cross-sectional survey was conducted from February to May 2025 among clinical and non-clinical staff, selected through multistage sampling to ensure departmental representation. Ethical approval was obtained, and interviewer-administered questionnaires collected data on demographics, risk perception, vaccine intention, preferred vaccine characteristics, and the 7C vaccination readiness scale. Primary outcomes were readiness and intention to vaccinate.

Results: A total of 485 staff participated (median age: 41 years; IQR: 35–48), with 52.0% female. The mean 7C vaccination readiness score was 3.35 (SD: 0.42) on a 5-point scale. Overall, 70.1% indicated willingness to accept an LF vaccine, with the highest intention among nurses (81.9%). Intention declined slightly with age. Higher readiness, lower complacency, stronger compliance, and weaker belief in conspiracies were associated with increased intention. Over half preferred vaccines with at least 80% effectiveness. Multidose schedules and lack of lifetime protection reduced acceptability. Oral vaccines were preferred over injectables. Free vaccine access was a major concern. Trusted recommendation sources included doctors, the WHO, and NCDC.

Conclusion: LF vaccine roll-out among hospital staff will require strategies that reduce complacency, ensure free and equitable access, and secure endorsements from trusted health authorities. Additionally, aligning vaccine characteristics and messaging with staff preferences will be critical for optimal uptake.

Keywords: *Acceptability, Lassa fever, Vaccine, Health workers*

Tackling Lassa Fever Misinformation and Vaccine Hesitancy through Culturally-Tailored Health Dialogues in Northern Nigeria

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Introduction: Misinformation and deep-rooted cultural beliefs remain significant barriers to Lassa Fever control in rural Northern Nigeria, where traditional and religious influences shape community behaviors. Despite public health campaigns, vaccine hesitancy and delayed health-seeking behavior persist. This study aimed to assess the impact of culturally-sensitive health dialogues in addressing Lassa Fever misinformation and improving vaccine acceptance in underserved communities of Kano and Jigawa states.

Methods: A mixed-methods intervention was conducted from January to November 2024 in 10 high-risk rural communities. Baseline surveys assessed knowledge, attitudes, and practices (KAP) relating to Lassa Fever and vaccination. Community health dialogues were designed in Hausa language, co-facilitated by trained health educators, religious leaders, and traditional chiefs. Post-intervention KAP assessments, focus group discussions (FGDs), and observational checklists evaluated changes in perceptions and behaviors. Ethical approval and community consent were obtained.

Results: Out of 1,200 respondents, baseline data showed that 68% believed Lassa Fever was caused by spiritual forces, and 54% were unwilling to accept a vaccine. Following the intervention, belief in supernatural causes reduced to 21%, while willingness to accept Lassa Fever vaccines increased to 82%. Engagement with trusted leaders emerged as a key enabler. FGDs revealed increased confidence in health workers and improved trust in government health messages. Community leaders formally committed to continued support and integration of Lassa messaging in religious gatherings.

Conclusion: Culturally-aligned community dialogues significantly reduced misinformation and vaccine hesitancy related to Lassa Fever. Collaborating with traditional and religious leaders is a powerful strategy for driving behavioral change in conservative settings. Scaling this model across similar regions in West Africa could enhance epidemic preparedness and improve vaccine uptake during outbreaks.

Keywords: *Lassa Fever, Vaccine Hesitancy, Misinformation, Cultural Beliefs, Community Engagement, Northern Nigeria*

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Oral 116

Une épidémie peut en cacher une autre : fièvre de Lassa au Nord Bénin en contexte d'épidémie de MVE en Afrique de l'Ouest

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Introduction : Un épisode d'épidémie de fièvre de Lassa est survenu en octobre 2014 à Tanguiéta (Bénin), au moment même où toute la sous-région faisait face à une épidémie majeure de Maladie à virus Ebola (MVE). Cet épisode a été marqué par le décès d'individus en population, mais aussi de plusieurs membres du personnel de l'hôpital de Tanguiéta, entre le 23 octobre et le 3 novembre 2014. Cette situation est révélatrice d'une alerte tardive à l'épidémie. C'est dans ce contexte que la présente recherche a été initiée aux fins d'analyser les pratiques et logiques mises en œuvre par divers acteurs sociaux concernés.

Méthodes : Nous avons opté pour une approche ethnographique rétrospective, consistant en la réalisation d'enquêtes qualitatives auprès d'acteurs de différents profils (populations, soignants, autorités sanitaires et religieuses, etc.).

Résultats : Malgré l'état d'alerte mis en place dans le cadre de l'épidémie de MVE qui affectait 10 pays dans le monde et la proximité sémiologique entre ces deux maladies virales, l'épidémie de fièvre de Lassa était restée invisible au système sanitaire pendant plusieurs semaines. La faible connaissance de la maladie par les populations et les soignants (en termes surtout d'imputations étiologiques variables), les interférences sociales (en termes surtout de déni du modèle virologique, de perceptions variables du risque et de recours thérapeutiques divers), le vécu de la maladie (en termes surtout de stigmatisation et de comportements d'évitement) et les pratiques aléatoires de prise en charge en milieu hospitalier (en termes de diagnostics multiples et de diversités du traitement), etc. sont les défis majeurs que le système de santé a affrontés.

Conclusion : L'étude a permis de rendre compte du contexte de fragilité des systèmes de soins en contexte épidémique, malgré les efforts consentis à divers niveaux. Des vulnérabilités ont été observées, traduisant la nécessité de revoir les approches développées jusque-là.

Mots clés : *fièvre de Lassa, cas suspects, logique d'action, anthropologie, Bénin*

A Qualitative Study of Frontline Perspectives And Experiences of Field Workers in the CEPI ENABLE 1.0 Lassa Fever Epidemiological Cohort Study in Edo State, Nigeria.

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Introduction: Field workers play a critical role in the success of longitudinal cohort studies, which require repeated follow-ups and time-intensive data collection. These studies pose unique challenges for field staff, including sustaining participant engagement, navigating ethical complexities, and addressing participants' needs—all of which can contribute to psychological, emotional, and physical stress. Despite their central role, the experiences of field workers remain underexplored, particularly in resource-limited settings. This study examined the experiences of field workers engaged in the CEPI ENABLE 1.0 Lassa fever cohort study in Edo State, Nigeria.

Methods: This qualitative **phenomenological study i**nvolved field workers directly responsible for data collection and supervision within the ENABLE 1.0 cohort. Two focus group discussions (FGDs) were conducted using a semi-structured interview guide developed from a comprehensive literature review and input from study investigators. The guide explored themes related to participant interactions, team dynamics, fieldwork-related stressors, coping mechanisms, and perceived effects on well-being. FGDs were audio-recorded, transcribed verbatim, and analysed thematically. Ethical standards were maintained.

Results: A total of 24 field workers participated. They described developing strong rapport with participants— some over extended periods—which facilitated cooperation. Reported challenges included long working hours, irregular visit schedules, and safety risks, such as exposure to community violence and occasional hostility, particularly during the six-monthly sampling visits. Few instances of sexual harassment were reported. Coping mechanisms included teamwork, flexible scheduling, and respectful communication. Participants also noted instances of providing financial or material support beyond formal responsibilities. Despite these challenges, field workers reported enhanced interpersonal skills, emotional resilience, and motivation for professional growth. They highlighted the need for safety training, timely salary disbursement, access to counselling, and healthcare coverage.

Conclusion: Longitudinal studies should incorporate contextually appropriate frameworks to support and safeguard field workers' well-being and effectiveness, including counselling services, safety training, and access to healthcare benefits.

Keywords: *Data collectors**, **Lassa Fever, Longitudinal Studies, Qualitative Research*

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Oral 118

Promoting Acceptability and Participation in the INTEGRATE Lassa Fever Clinical Trial: Exploration of Community Perceptions Through Mixed Methods Research

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Introduction: Lassa fever (LF) is endemic in Nigeria, with Ondo and Edo States serving as epicenters of recent outbreaks. The INTEGRATE clinical trial seeks to identify effective treatments for LF. However, trial participation could be hindered by community sociocultural beliefs, misconceptions, or mistrust. This study explored community knowledge, attitudes, and perceptions surrounding LF and clinical trials in Ondo and Edo States, to inform the design and implementation of a culturally responsive community sensitisation strategy to promote acceptability and participation in the clinical trial.

Methods: An exploratory mixed methods design was employed across selected communities in both States, engaging 150 purposive sampled community leaders and members. Quantitative data were first collected using a structured questionnaire and analyzed descriptively with SPSS and R software. Qualitative insights were then gathered from a subset of participants to explore sensitive issues through semi structured interviews, and thematically analyzed using MaxQDA. Findings were interpreted within each state's sociocultural context to ensure their relevance.

Results: Participants generally demonstrated good knowledge of Lassa fever (LF); 91% identified eating food contaminated with rat excreta as a risk factor. However, 13%attributed LF to witchcraft and 11% to divine punishment. Belief in spiritual and traditional cures coexisted with confidence in biomedical treatments. Willingness to participate in LF clinical trials was driven by the promise of quality, free care. Some also viewed participation as a way to serve their community. However, concerns around the clinical trial process—such as randomisation, efficacy, and safety—were key barriers. Notably, 77.3%would only participate if clearly informed, and 36% required family approval.

Conclusion: These findings highlight the need for context-sensitive communication strategies that address spiritual beliefs, clarify clinical trial processes, and build trust in biomedical care. Tailored sensitisation could dispel misconceptions and enhance trial acceptability, supporting LF treatment advancement in Nigeria and beyond.

Keywords: *Lassa fever, clinical trials, community sensitisation, misconceptions, mixed methods, public health research*

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Oral 119

Perceptions and Determinants of Acceptance of a Future Lassa Fever Vaccine in Endemic Communities of Edo State, Nigeria: A Cross-Sectional Study.

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Introduction: Lassa fever (LF) is prioritised for accelerated vaccine development, yet prior vaccination efforts in Nigeria show that availability does not guarantee uptake. This study assessed willingness to accept a future LF vaccine and associated factors in Edo State, Nigeria.

Methods: A cross-sectional study was conducted from May to November 2023 across seven LF hotspot communities, enrolling 790 adults aged over 18 years using multistage sampling. Data were collected using questionnaires adapted from the WHO Behavioural and Social Drivers of Vaccination tool and analysed with SPSS v21. Ethical standards were strictly followed.

Results: The mean age of participants was 38.0 ± 12.9 years. Over half (52.7%) had a high personal risk perception, and 51.3% were aware of LF vaccine development. Most (93.4%) held positive perceptions towards the future vaccine, and 82.0% expressed their willingness to receive it when it becomes available, though only 27.8% would be willing to pay. Health professionals were the most trusted source of information (70.0%). Past vaccination barriers included late opening times (39.6%) and unavailability of vaccines (27.3%). Concerns regarding the LF vaccine focused on possible side effects (70.6%) and fear of infection from the vaccine itself (72.7%). Willingness to accept the LF vaccine was significantly higher among those with high vaccine perception (AOR = 17.508, $p < 0.001$), willingness to pay (AOR = 6.445, $p < 0.001$), high personal risk perception (AOR = 1.945, $p = 0.032$), and those who knew someone affected by LF (AOR = 4.174, $p = 0.004$). Conversely, vaccine-hesitant individuals (AOR = 0.293, $p < 0.001$) and the self-employed (AOR = 0.475, $p = 0.037$) had significantly lower odds of willingness.

Conclusion: Although willingness to accept a future LF vaccine is high, targeted interventions are essential to overcome identified barriers and ensure equitable uptake.

Keywords: *Lassa fever, Risk Perception, Vaccines, Vaccination Acceptance*

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Oral 120

Strengthening Community-Based Surveillance and Early Detection: Training Local Health Workers and Community Networks to Enhance Early Outbreak Warnings and Risk Communication.

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Introduction: Effective community-based surveillance (CBS) is essential for timely outbreak detection, especially in low-resource settings. Gaps such as limited frontline health worker training and weak reporting systems prompted a targeted intervention in rural Ghana.

Methods: A mixed-methods, pre-post intervention study was conducted across three rural districts in Ghana's Eastern Region. The study involved 150 community health officers, surveillance volunteers, and local leaders selected through purposive and snowball sampling. Structured questionnaires and focus group discussions were used for data collection. Quantitative data were analyzed with SPSS v26, while qualitative data were thematically coded.

Results: Post-training, 92% of participants could identify priority disease symptoms, up from 48% pre-training. Notification time decreased from 6.2 to 2.1 days. Reporting accuracy improved by 35%, with verified alerts increasing from 23 to 68 in three months. Communities reported improved trust in health workers and higher engagement in surveillance efforts.

Conclusion: Training community-level actors significantly enhances CBS efficiency and risk communication. Institutionalizing such training within district health systems is recommended to strengthen Ghana's integrated disease surveillance and response (IDSR) framework.

Keywords: *Community-Based Surveillance, Disease Outbreak Detection, Risk Communication, Health Worker Training*

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Oral 121

Effects of Enhanced Health Education Intervention on Lassa Fever preventive practices in Ondo State, Nigeria

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Introduction: Lassa fever is prevalent in Ondo State, Nigeria. Despite routine health education interventions (RHEI) community participation in prevention remains low. This study assessed the impact of enhanced health education interventions (EHEI) on community engagement in adopting preventive practices in Owo LGA.

Methods: An exploratory sequential mixed-methods study, including qualitative research and a cluster-randomised trial, was conducted in Iyere (intervention) and Isaipen (control) in Owo LGA. Baseline data were gathered via focus group discussions, interviews, and questionnaires from 230 households. A three-month Enhanced Health Education Intervention (EHEI) included community leader discussions, educational material distribution, and weekly household health sessions by trained health workers. Control communities continued Routine Health Education Interventions (RHEI). End-line data assessed participation in Lassa fever prevention (bush clearing, deratting, or fumigation). Bivariate and logistic regression analyses evaluated EHEI's impact. Statistical significance was set at 5%.

Results: At baseline, the mean age was 34.2 ± 12.0 (intervention) and 45.3 ± 16.3 years (control), with females comprising 140 (56.0%) and 149 (59.6%), respectively. At baseline, 90 (36%) households had good participation in Lassa fever preventive practices in the intervention compared to 117 (46.8%) of the control community (p = 0.014). At end-line, 213 (85.2%) households in the EHEI community had good participation in Lassa fever preventive practices compared to 128 (51.2%) from the RHEI community (p < 0.001). Respondents with tertiary education had higher odds of having good participation in Lassa fever preventive practices (OR = 5.5, 95%CI = 1.61 - 18.81). At the end-line, odds of good participation in Lassa fever preventive practices among households in the EHEI community was 19.0 (95%CI = 5.8 - 63.8) compared to RHEI households.

Conclusion: EHEI improved community participation in Lassa fever prevention. The Ondo State Ministry of Health should integrate EHEI into existing RHEI measures.

Keywords: *Lassa fever, Community health, Infection, Community participation, Health, Nigeria.*

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Oral 122

SOCIODEMOGRAPHIC AND PREVALENCE OF PSYCHOLOGICAL DISTRESS AMONG CAREGIVERS OF LASSA FEVER PATIENTS AT IRRUA SPECIALIST TEACHING HOSPITAL, EDO STATE, NIGERIA

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Introduction: Lassa fever (LF) poses a significant public health challenge, with Edo State contributing a large share of cases in Nigeria. Irrua Specialist Teaching Hospital (ISTH) serves as the referral centre in the state, offering specialized care. Family caregivers play a vital role in supporting hospitalized patients but face risks of infection and emotional strain which may lead to psychological distress. This study aims to determine the prevalence and sociodemographic factors associated with anxiety and depression among caregivers.

Methods: A hospital-based cross-sectional study was conducted between February to May 2022 at IVEPCR Ward. Consenting primary caregivers were recruited through total population sampling. A total of 195 caregivers participated. Data were collected using interviewer-administered questionnaires capturing sociodemographic information and psychological distress, measured by validated tools: the nine-item patient Health Questionnaire for depression, (total score: 0-27, depressive symptoms $\geq$ 5), Generalized Anxiety Disorder-7 for anxiety (total score: 0-21, anxiety symptoms $\geq$ 5). Data analysis included descriptive statistics, chi-square tests, and logistic regression using SPSS version 25.

Results: Most respondents were female (80.5%), with a mean age of 39.97 ± 13.42 years; majority were Christian (82.1%) and married (72.3%). Business/trading was the predominant occupation (50.8%). Mothers (34.9%) were the most common caregivers. Anxiety scores (GAD-7) averaged 4.03 ± 4.55, with severity levels: none (64.8%), mild (22.5%), moderate (7.7%), severe (4.9%). Depression scores (PHQ-9) averaged 1.86 ± 4.10, with severity levels: none (86.6%), mild (10.6%), moderate (1.1%), severe (1.7%). Suicidal ideation was reported by 5.3%. No significant associations were observed between psychological distress and Sociodemographic variables or caregiver relationship (p > 0.05).

Conclusion: A considerable proportion of caregivers of Lassa fever experienced symptoms of anxiety and depression. This highlights the need for routine psychological screening and provision of mental health and psychosocial support to improve caregivers' well-being and enhance patient care in endemic regions.

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Oral 123

Strengthening Community Engagement Capacity for Vaccine Trial Readiness in West Africa: A Platform Approach Anchored in Lassa Fever Preparedness

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Background: Lassa fever (LF) remains a continuing public health threat across West Africa, where many clinical trial sites lack sufficient community engagement (CE) capacity to support ethical, effective vaccine research. In response, the Coalition for Epidemic Preparedness Innovations (CEPI)-funded Advancing Research Capacity in West Africa (ARC-WA) initiative, led by the Technical Coordinating Partners (TCP), aims to build CE capacity and a sustained platform for readiness to support a Phase 2b efficacy trial and future epidemic-responsive research. To build sustainable CE capacity at selected clinical trial sites in West Africa by supporting SOP development, targeted training, and implementing participatory community engagement strategies aligned with Good Participatory Practice (GPP) standards.

Methods: A multi-site intervention is being implemented at six clinical trial research centers in Lassa Fever-endemic countries. Key activities include: development of CE SOPs (e.g., stakeholder mapping, community advisory board (CAB) management, community sensitization); conducting site-level training workshops; facilitating participatory planning sessions; and integrating CE tools into broader trial preparedness activities. Participants include CE focal staff, CAB members, and clinical site leadership.

Results: Preliminary findings indicate improved comprehension of CE principles among site teams, development and piloting of CE SOPs at four sites, and enhanced engagement with local stakeholders. All the sites have initiated CE planning aligned with recruitment and retention and broader trial preparedness goals. Final documentation and analysis are ongoing, with full results expected by Q2 2025.

Conclusion: Investing in CE capacity contributes to more agile, ethical, and community-responsive vaccine trial sites. While the initiative is rooted in LF preparedness, the tools and strategies developed are broadly applicable to other priority pathogen trials. These effort supports CEPI's 100 Day Mission and demonstrates scalable, sustainable practices for public health emergency preparedness in the region.

Keywords: *Community Engagement; Capacity Building; Lassa Fever; Clinical Trial Readiness; West Africa*

Using Human-Centered Design to Identify Behavioral Barriers and Enablers in Lassa Fever Prevention in Nigeria

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Introduction: Lassa Fever (LF) remains a significant public health threat in Nigeria, driven by complex socioeconomic, environmental, and behavioral factors. Despite its endemicity, misconceptions about disease transmission, stigma, and poor adoption of preventive behaviors persist in affected communities. This study applied a Human-Centered Design (HCD) approach to uncover deeper insights into community perceptions, information flows, and behavioral patterns related to LF, to inform sustainable, community-based solutions.

Methods: The Discovery phase of the HCD process was implemented in three high-burden states—Ondo, Edo, and Benue—covering six wards across three local government areas. Qualitative methods used included 54 interviews and 36 direct observations of research with LF survivors, healthcare workers, food processors, farmers, household influencers, and community and religious leaders. Thematic analysis guided by the Social Ecological Model was employed to explore the multi-level behavioral drivers and barriers.

Results: Findings revealed a disconnect between awareness and action. While participants were familiar with LF, knowledge gaps about transmission and risk reduction persisted. Stigma and fear of diagnosis discouraged timely care-seeking. Unsafe food and waste practices, limited access to clean water, and distrust in government health messages further compounded risks. Community influencers were recognized as trusted information sources, yet lacked the resources and training to effectively communicate accurate health messages.

Conclusion: The study highlights the need to co-create targeted risk communication and behavior change strategies that go beyond awareness, focusing on building trust, correcting misinformation, and addressing structural and social barriers. By engaging communities through trusted channels and leveraging local insights, future interventions can support the adoption of durable, preventive behaviors against LF.

Keywords: *Lassa Fever, Human-Centered Design, Risk Communication, Behavioral Insights, Community Engagement, Nigeria*

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Oral 125

Lessons learnt from Community Engagement in a Prospective Cohort Study on Lassa Fever Incidence in Edo State, Nigeria

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Background: Effective community engagement (CE) is essential in population -based research, as it enhances understanding, facilitates recruitment retention and trust. In West Africa, Lassa Fever (LF) represents a persistent public health challenge, hence the need for context-specific engagement strategies. This paper describes the CE approaches implemented, and lessons learned from the CEPI ENABLE 1.0 LF Cohort Study conducted in Edo State to inform the design of LF vaccine clinical trials.

Methods: Between December 2020 and June 2023, 5,053 participants from 657 households across seven high-burden communities in Edo State were enrolled. Initial engagement activities involved advocacy visits to state, local government and community leaders. Subsequently, structured interactions occurred at baseline and every six months, complemented by adhoc activities as needed. A team made up of the Community Advisory Board, nominated liaison officers and field workers facilitated this effort. After trainings on effective communication, field workers resided within the communities to ensure ongoing engagement. CE encompassed town hall meetings, households' visits, focus group discussions, and using culturally appropriate health education delivered in local dialects. LF survivors also served as champions. All engagement activities adhered to standardized protocol.

Results: The study achieved 100% recruitment and high retention (94.6%). Initial misconceptions particularly about blood collection were clarified through ongoing engagement. Activities included 4 focus group discussions, 30 town hall meetings, and 3 course specific sessions in 2 communities. Community perception shifted from mistrust to active interest, with increased adoption of preventive health practices and strengthened relationship evidenced by calls for study continuation.

Conclusion: The ENABLE 1.0 study demonstrated the importance of culturally appropriate and participatory community engagement in facilitating successful health research. Future studies such as the LF vaccine clinical trials should incorporate locally embedded trust-building strategies from the outset to optimize study outcome.

Keywords: *Lassa fever, Community, Community Engagement, strategies*

Knowledge, Perception and Preventive Practices of Lassa Fever Among Mothers of Under-Five Children in an Endemic Community in Edo State. Nigeria

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Background: Lassa fever remains a public health priority in Nigeria, with endemic hotspots like Edo State experiencing recurrent outbreaks. Mothers of under-five children are key targets for prevention efforts due to their caregiving role. While awareness campaigns have increased knowledge, their effect on preventive behaviour remains uncertain.

Methods: A community-based cross-sectional survey was conducted among 130 mothers of under-five children in Esan Central LGA, Edo State, using a multistage sampling technique. Data were collected via structured interviewer-administered questionnaires and analysed using SPSS v30. Associations between sociodemographic factors and both knowledge and practice were explored using chi-square and logistic regression.

Results: Although 100% of mothers were aware of Lassa fever, with health workers being the source of information (55.4%). 72% of mothers had good knowledge of Lassa symptoms, only 67% practiced adequate prevention such as handwashing (71.5%) and maintaining proper drainage systems (70.8%). Education and ethnicity significantly influenced knowledge (p < 0.001), while marital status, ethnicity, and parity were significantly associated with preventive practices (p<0.05). Key gaps identified included improper food storage and limited rodent control practices.

Conclusion: Bridging the knowledge-practice gap requires translating information into sustainable behaviour change. The disconnect between knowledge and action underscores a need for tailored, behaviour-centred interventions. Public health programs should go beyond awareness campaigns to include community-based demonstrations, culturally contextual messages, and women-centred empowerment strategies. Health systems must also integrate Lassa fever education into routine maternal and child health services.

Keywords: *Lassa fever, knowledge, preventive practices, mothers, under-five children.*

Assessing the Impact of Human Behavior on Transmission Dynamics of Lassa Fever in Grand Bassa County, Liberia, from 2017 – 2028

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Introduction: Lassa Fever remains a major public health problem in West Africa. Annually, 100,000 to 300,000 infections occur with approximately 5,000 deaths. In Liberia, Lassa fever outbreaks with high case fatality have been widespread despite the implementation of a national plan to curb the disease. Grand Bassa County has experienced sustained transmission since 2021. We developed a mathematical model for Lassa Fever focused on District 3A&B, Grand Bassa County to demonstrate the potential impact of intervening on behavioral transmission routes.

Methods: A composite model for Lassa fever spillover risk was parameterized using routine surveillance data, detailed outbreak line lists, and Demographic and Health Survey data. The spillover model component was gender and age-stratified to capture socio-behavioral practices hypothesized by national stakeholders to enhance transmission risk among women and girls relative to men and boys. A rodent transmission model component was fit to account for differential infection among *Mastomys* rats inside and outside the house and seasonality in vector abundance. The impact of behavioral interventions on differential case counts between males and females was quantified.

Results: Socio-demographic, clinical, epidemiological, and behavioral data on 83 confirmed Lassa fever cases (63% female) reported in line-lists between 2017 and 2022 were available for District 3A&B. The model projected a cumulative incidence of 50.9 care-seeking female cases (IQR: 35.4-76.4) and 22.7 care-seeking male cases (15.4-33.2) in District 3A&B for 2023-2027. Environmental clean-up to reduce rodent recruitment into houses led to the largest overall reductions in case counts, while safer handling practices of hunted rodent meat considerably reduced disparities in case counts. Reduced transmission via consumption of uncovered and contaminated food enhanced disparities in case counts.

Conclusion: Diverse local data were used to inform a Liberia-specific model of Lassa fever. The most effective intervention as shown by the model that affected both sexes was environmental cleanup.

Keywords: *Lassa Fever, Human Behavior, Transmission dynamics*

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Oral 128

Engaging research naive communities for participation in Lassa fever studies within catchment areas of a tertiary hospital in Nigeria: the discourses and dilemmas

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Introduction: Lassa fever remains a significant public health challenge in West Africa, with Nigeria bearing a substantial burden of the disease. Effective research and surveillance are crucial for developing targeted interventions. Community engagement is ethically imperative and pivotal for effective research, as emphasised by frameworks like the WHO's Good Participatory Practice for Emerging Pathogens (GPP EP). However, engaging research naïve communities presents complex discourses and dilemmas critical to advancing regional disease control efforts. This study explores strategies for fostering participation in Lassa fever research among communities participating in the ongoing 'Enable Lassa' study in West Africa funded by the Coalition for Epidemic Preparedness Innovations (CEPI) at the Alex Ekwueme Federal University Teaching Hospital Abakaliki (AEFUTHA), Nigeria.

Methods: Our research employed a cross-sectional qualitative approach incorporating key informant interviews (KIIs) and focus group discussions (FGDs) across ten communities among local community members, healthcare providers, and public health officials from June to December 2024. The interactions were digitally recorded, transcribed verbatim, and analysed using NVivo software. Ethical approval and verbal informed consent for recordings and pictures were obtained.

Results: Findings highlight deep-seated mistrust towards research involving blood collection, often rooted in historical misunderstandings and inadequate communication. A significant dilemma emerges around balancing scientific imperatives with sociocultural realities and economic constraints. While communities express a need for health interventions, misconceptions about Lassa fever transmission and suspicion of researchers' motives persist. This tension is further exacerbated by limited feedback mechanisms and inadequate benefit-sharing models.

Conclusion: The study emphasises the significance of community engagement frameworks, focusing on transparency, cultural sensitivity, and knowledge co-creation. It recommends a shift towards participatory approaches and ethical recruitment practices. This study contributes to the discourse on decolonising global health and aligns with the ECOWAS commitment.

Keywords: *Lassa fever, research naïve communities, Community Engagement, Abakaliki, Nigeria.*

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Oral 129

Assessment of vaccine acceptance and perceptions of Lassa fever among acutely ill patients in Edo State, Nigeria: Findings from a cross-sectional study

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Introduction: Lassa fever (LF) is a viral haemorrhagic illness endemic to West Africa, with case fatality rates up to 30% among hospitalized patients. As a high-consequence disease like Ebola, LF may provoke fear, stigma, and misconceptions, potentially hindering healthcare access and vaccine acceptance. However, research on vaccine acceptance and perceptions remains limited. This study aimed to explore attitudes toward LF and potential vaccines among patients in affected communities.

Methods: From February 2023 to February 2024, a cross-sectional study was conducted among patients admitted to the LF isolation ward at the Irrua Specialist Teaching Hospital, Edo State, Nigeria. A structured Likert-scale questionnaire assessed beliefs about LF severity, fear, stigma, and attitudes towards vaccines and clinical trials.

Results: Among 105 surveyed Lassa fever (LF) patients (median age 34 years [IQR 25–44]; 58% male), 98% agreed that LF requires hospital treatment, and 87% believed it spreads easily from person to person. A majority (73%) reported being scared by the illness, while 58% expressed fear of reinfection.
Regarding stigma, 49% felt comfortable discussing their LF illness openly, whereas 33% preferred to keep it private. About a third (35%) were concerned that others might treat them differently, and 25% admitted feeling ashamed of having LF. Furthermore, 34% believed LF survivors face stigma or social exclusion, and 30% feared being stigmatized or excluded. Up to 83% believed LF vaccines could be effective, 88% were willing to be vaccinated, and 80% would vaccinate their children. However, willingness to participate in research was moderate, with 60% willing to participate in vaccine trials and 50% in drug studies.

Conclusion: Patients with LF reported substantial emotional distress and fear of social exclusion. The discrepancy between vaccine acceptance and lower trial participation highlights the need for focused community engagement and education to build trust in future vaccine and therapeutic initiatives.

Keywords: *Acutely ill patients, Lassa fever, Stigma, Perceptions, Vaccine acceptance*

Assessment of Treatment Outcome and Associated Stigmatization and Discrimination Among Lassa Fever Patients Treated at the Benue State Treatment Centre, Makurdi, Benue State, Nigeria

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Introduction: Lassa fever continues to affect communities in Nigeria, exhibiting a high case fatality rate despite intervention efforts. Survivors and their families frequently face stigmatization and discrimination, which hinders their reintegration and access to care. This study assessed treatment outcomes and stigma among patients at Benue State University Teaching Hospital (BSUTH) in Makurdi, Benue State.

Methods: A cross-sectional study was conducted at BSUTH from January to December 2024, using pretested questionnaires and qualitative tools for data collection. Data were analyzed using SPSS and NVivo, with results presented in descriptive and qualitative formats.

Results: Among 102 suspected cases admitted, 46.1% (n=47) tested positive for Lassa fever, with a case fatality rate of 12.8% (n=6). Of the 41 discharged patients, 61.0% (n = 25) left without complications, 29.3% (n = 12) were transferred for ongoing care, and 9.8% (n = 4) were transferred for management of acute renal injury. Over half of the patients (51.2%) experienced community discrimination, rooted in misconceptions about the disease. The majority of the communities believe that survivors are contagious or that contracting the disease is a form of punishment from the gods. Two deceased patients (50.0%) were denied burial in their communities, and healthcare workers facilitating safe burials faced assaults.

Conclusion: While treatment outcomes for Lassa fever at BSUTH were favourable, significant stigma persists, affecting survivors' lives, their ability to reintegrate into their communities, and access to healthcare. A targeted strategy that incorporates education, awareness, and community engagement is vital to addressing these challenges.

Keywords: *Lassa Fever, Survivors, Stigmatization, Treatment Outcome, Benue, Nigeria*

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Oral 131

Quantitative Assessment of Socio-Cultural Determinants of Lassa Fever Transmission in Kailahun and Kenema Districts, Sierra Leone

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Background: Lassa fever is a zoonotic disease primarily transmitted through contact with the bodily fluids of the Mastomys natalensis rat. This study examines the socio-cultural determinants of Lassa fever transmission in Kailahun and Kenema districts, Sierra Leone. Methodology: This study employed a descriptive and cross-sectional quantitative design to assess socio-cultural determinants of Lassa fever transmission in Kailahun and Kenema Districts, Sierra Leone. Structured questionnaires were used to gather data from household heads.

Methods: A three-stage sampling method was applied, combining purposive, stratified, and systematic random sampling, resulting in a final sample size of 1,033 participants. Ethical approval and community entry protocols were strictly followed. Data analysis was conducted using SPSS version 28.

Result: Findings indicate a high awareness of Lassa fever (90.9%), with health centers (48.9%) being the primary source of information. While 76.4% of respondents identified common symptoms, knowledge of specific symptoms such as muscle aches (23.2%) and bleeding (23.2% remained low. Misconceptions about transmission was evident, with only 54.7% recognizing direct rodent contact as a risk factor, while 3.1% attributed it to mosquito bites. Preventive practices were inadequate, with only 12.8% being aware of proper food storage and 4.3% recognizing personal protective equipment use. A high percentage (91.4%) reported using traps or other rodent control methods; however, 4.9% engaged in hunting and consuming rats. Proper food storage remains a critical Issue, with only 56.5% using sealed containers while 18.8% used open containers, exposing food to rodent contamination. Sociocultural analysis revealed that older age groups (AOR = 5.505, p=0.011) had significantly higher odds of experiencing Lassa fever symptoms. Poor hygiene (AOR - 1,555, p=0.008) and improper waste disposal (AOR = 2.968, p=0.046) were also key risk factors.

Conclusion: These findings underscore the need for public health interventions to improve knowledge, dispel myths, and promote preventive behaviors.

Keywords: *Lassa fever, rats, symptoms, and transmission*

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Oral 132

A forecasting approach to navigate uncertainty in Lassa fever vaccine demand and guide supply planning

Lassa Fever Vaccine Demand Forecasting Working Group
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Introduction: Lassa fever remains a significant public health threat in West Africa. While vaccine candidates are advancing through the pipeline, efforts in planning timely and sufficient supply have been constrained by limited understanding of demand. This challenge is compounded by the shifting global financing landscape and unclear country-level investment capacity in the vaccine product and the implementation activities required to achieve appropriate coverage.

Methods: A demand forecast model for a Lassa fever vaccine was developed. The model includes five implementation scenarios across endemic and non-endemic at-risk countries, accounting for diverse use cases such as integration into routine immunization, targeted geographic campaigns, occupational group campaigns, and reactive use through stockpiles. Key inputs included vaccine characteristics, coverage rates, market entry timing, and policy timelines. Assumptions were developed through literature review and will be refined via workshops and consultations with global, regional, and country experts.

Results: Forecasts present a heterogenous vaccine demand picture between 2031 and 2036, driven primarily by differences in countries' ability to invest. In more conservative scenarios, vaccine demand is initially limited to high-burden regions with gradual scale-up over time, focusing on high-risk groups. Demand is further influenced by product characteristics, such as well as ultra-cold chain capacity.

Conclusion: The initial analysis reveals that demand is not solely a function of disease burden but is highly sensitive to country-level prioritization, funding availability, the strategic choices countries make around vaccine

introduction. Understanding and anticipating Lassa fever vaccine demand is critical for guiding investment in manufacturing for product developers, in delivery systems for countries, and in policy advocacy for community groups. Demand forecasts must remain flexible, incorporating real-time inputs from country stakeholders and evolving financing landscapes. The ability and prioritisation of countries to invest in both vaccine procurement and implementation strategies will be the primary determinant of demand.

Keywords: *demand forecast, vaccine implementation, supply, financing*

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Oral 136

Addressing Misinformation, Lassa Fever Vaccine Hesitancy, and Cultural Barriers: Developing Culturally Tailored Communication Strategies, Engaging Traditional and Religious Leaders, and Countering Health-Related Misinformation Through Media Using Izza Community of Ebonyi State as a Case Study

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Introduction: Lassa fever, an endemic viral infection in Nigeria, poses significant public health challenges, particularly in communities like Izza in Ebonyi State, where misinformation and cultural barriers contribute to widespread vaccine hesitancy. This study highlights the urgent need to address these barriers through culturally relevant communication strategies, emphasizing the role of traditional and religious leaders in promoting health literacy and vaccine acceptance within the community.

Methods: This research employed a mixed-methods design, integrating quantitative surveys and qualitative interviews. Data were collected from 500 community members, 20 traditional leaders, and 15 religious leaders using structured questionnaires and semi-structured interviews. Statistical analyses were conducted to evaluate knowledge, attitudes, and practices regarding Lassa fever, while thematic analysis was applied to qualitative data to identify prevalent cultural beliefs and misinformation narratives.

Results: The study revealed that 72% of respondents lacked accurate knowledge about Lassa fever transmission and prevention. Misinformation was prevalent, with 60% of participants believing myths regarding the safety and efficacy of the vaccine. Engagement with traditional and religious leaders proved vital; their involvement led to a 55% increase in community willingness to vaccinate when they endorsed the immunization campaign. Additionally, tailored communication strategies, including localized messaging via community gatherings and social media platforms, significantly improved understanding of the vaccine's importance.

Conclusion: The findings underscore the critical role of culturally tailored communication and the engagement of trusted local leaders in mitigating vaccine hesitancy and misinformation. Recommendations include developing comprehensive training programs for traditional and religious leaders, utilizing community-driven media initiatives, and integrating traditional knowledge in health messaging to enhance trust and vaccine uptake. These strategies can serve as a model for addressing similar public health challenges in other communities facing cultural and informational barriers to vaccination.

Keywords: *Lassa fever, vaccine hesitancy, misinformation, cultural beliefs, traditional leaders, health communication,*

Assessment of Knowledge and Perceptions of Health Professionals Towards One Health Program in Somaliland

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Introduction: This study explored the knowledge and perceptions of health professionals in Somaliland regarding the One Health approach, which emphasizes the interconnectedness of human, animal, and environmental health.

Methods: A descriptive cross-sectional design was employed, involving 422 participants from diverse health fields including doctors, nurse midwives, public health workers, lab technicians, veterinary doctors, environmental health specialists, and health administrators. Data were gathered using self-administered questionnaires and analyzed with SPSS version 23.0.

Results: The study shows health professionals mainly from Maroodi-jeex (34.8%) and Togdheer (23%), with smaller proportions from Awdal, Saaxil, Sanaag, and Sool. Females made up 59.7% of participants, with a mean age of 29 years and 5.2 years of experience. Educationally, 56.2% held a Bachelor's degree, 27.7% a Diploma, 15.6% a Master's, and 0.5% a PhD. Knowledge of One Health was significantly higher among those over 34 years ($P < 0.001$) and males (OR = 2.06, $P = 0.001$). Medical doctors demonstrated higher knowledge and perception scores compared to other professionals. Nurses, nutritionists, and lab technicians had significantly lower odds of positive perceptions ($P < 0.01$). Multivariate analysis indicated that higher education levels improved perceptions of One Health.

Conclusion: The study reveals knowledge and perception gaps in One Health among Somaliland health professionals, highlighting the need for targeted training and cross-sectoral collaboration.

Keywords: *One health, Knowledge, perceptions and health professionals, Somaliland.*

Scaling Political Commitment and Sustainable Financing for Lassa Fever in West Africa: Lessons from the Nigeria Governors' Forum

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Introduction: Lassa fever remains a persistent public health threat in West Africa, with Nigeria recording the highest burden and contributing to regional transmission. Addressing these outbreaks require political will and sustainable financing. In 2021, the Nigeria Governors' Forum (NGF), a platform for the country's 36 state governors, adopted Health Security as a priority. This study shows how NGF's accountability framework has been used to mobilise state level action and financing for Health Security which includes Lassa fever and how the approach can be adapted in the region.

Methods: The NGF Secretariat in partnership with Nigeria Centre for Disease Control and partners, developed a Health Security Scorecard to track state level commitments using indicators measuring functionality of Public Health Laboratories (PHLs), availability of intra state sample referral systems, funding for Emergency Preparedness and Response, and Public Health Emergency Operations Centres (PHEOCs). This was complemented with monthly updates to governors and tailored advocacy targeting high burden states.

Results: The Scorecard increased visibility of Lassa fever at the highest political level in states. This visibility alongside peer pressure amongst governors enhanced political ownership, led to greater accountability. and contributed to increased resource mobilisation and prioritisation. As a result, between 2022 and 2024, the number of states with functional PHLs increased from 15 to 19, intra state sample referral systems from 16 to 23, funded epidemiology units and PHEOCs from 22 to 30. These improvements were accompanied by notable reductions in Lassa fever incidence between 2023 and 2025 in epicentre states: Ondo (1,685 to 190), Edo (1,375 to 105), Taraba (422 to 103), Bauchi (636 to 161), and Ebonyi (260 to 17).

Conclusion: The NGF's approach can be replicated by ECOWAS countries through the development and utilisation of accountability tools, establishment of regional peer learning platforms, harmonising financing strategies and integrating Lassa fever preparedness

Keywords: *Lassa fever, political commitment, sustainable financing, Nigeria Governors' Forum, sustainable financing*

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Oral 140

Translating National Lessons into Regional Strategies for Lassa Fever Vaccine Coordination.

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Background: "Viruses know no borders" is an evergreen concept in global health security. Although Nigeria accounts for the majority of the burden of Lassa fever, the transboundary nature of outbreaks makes regional collaboration on vaccine development both a necessity and an opportunity. Nigeria's experience establishing a national task force offers a compelling case study in how country level structures can contribute to regional governance models. This analysis explores how lessons from the **Task Team on Effective Vaccine for Lassa Fever in Nigeria** can inform the design and institutionalization of coordinated mechanisms for vaccine research, regulation, and distribution across West Africa.

Methods: The analysis is based on a review of task force documents, stakeholder consultations, and comparative analysis of regional health coordination frameworks using meeting minutes, clinical trial updates, and other sources. A thematic analysis was conducted to identify transferrable elements from Nigeria's model of governance, stakeholder coordination, regulatory preparedness, and community engagement strategies applicable to regional vaccine initiatives.

Results: In its first year of implementation, the **Task Team on Effective Vaccine for Lassa Fever in Nigeria** leveraged strong political leadership, inclusive stakeholder engagement, and multi-agency collaboration to foster an enabling environment for the vaccine development process. As a case study, it highlights critical components for effective vaccine coordination—particularly in governance, regulatory alignment, and resource pooling—that are transferable to a regional context. Priorities for regional adaptation include harmonizing regulatory pathways, expanding national task forces across countries, fostering South to South learning, and coordinating multi-country trials.

Conclusion: The Nigerian model demonstrates how national ownership, structured coordination, and early regulatory alignment can advance vaccine research and development. These elements offer a viable foundation for a regional coordination mechanism, anchored in political commitment, capacity building, and shared learning, that can provide an enabling environment for Lassa fever vaccine development across endemic countries.

Keywords: *Lassa Fever, Vaccines, Regional Health Planning, International Cooperation*

Self-Assessment of System Readiness and Capabilities Response to Arbovirus Threats in Cameroon: Stakeholders Interview

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Introduction: WHO has indicated its concern about arboviruses by implementing the Global Arbovirus Initiative, to provide higher-level awareness, guidance and support for nations globally in 2022. A recent survey published by WHO in 2022 reported that all 47 countries in the WHO AFRO region have a "huge gap" in capacity and readiness to confront the rising threat of arboviruses. Working on behalf of the "Resilience Against Future Threats through Vector Control" partners, Malaria Consortium developed an evaluation instrument of country's self-assessed questionnaire on arbovirus preparedness. This survey is part of a project in partnership with Centre for Research in Infectious Disease. The aim was to grasp the diverse perspectives and insights of stakeholders on arbovirus threats and preparedness.

Methods: A total of four stakeholders from different structures that could contribute to arboviruses outbreak preparedness, surveillance, and control, were interviewed.

Results: This interview has further strengthened our understanding of the country's level of preparedness in the face of threats related to arboviruses. As a result, this interview allowed us to identify some gaps in the preparation and to understand that the main difficulty is the lack of financial, material, and logistical resources. From this interview, we were also able to identify some challenges, particularly regarding epidemiological surveillance, management, risks communication and community engagement. As for the technical and financial contribution, there is still no budget allocated for surveillance, preparation, and response activities related to arboviruses.

Conclusion: When we know that several countries in Africa in general, and those bordering Cameroon in particular, regularly face dengue epidemics, it is important that the country's level of preparedness is at its highest. However, the experience of managing yellow fever epidemics can serve as a framework upon which to build in order to improve the country's preparedness and response capabilities to arboviruses.

Keywords: *Cameroon, Arbovirus, stakeholders, interview, preparedness, response.*

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Oral 142

De-risking Zoonotic Spillover: A Sustainable Finance Model to Address Lassa Fever Through Land-Use Innovation in Nigeria

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Introduction: Lassa fever, a viral hemorrhagic disease endemic to West Africa, is increasingly linked to unregulated land-use practices that intensify rodent-human interface. The expansion of cocoa and palm oil plantations contributes to habitat fragmentation, boosting populations of *Mastomys natalensis*, the primary reservoir, and heightening spillover risk. While health sector responses have improved, they remain reactive and under-resourced in addressing the root environmental drivers.

Methods: We propose the establishment of an Investor Alliance targeting foreign stakeholders in Nigeria's agricultural sector: particularly from Japan, Korea, Malaysia, and Singapore. This alliance adopts a blended finance and ESG disclosure approach to incentivize sustainable land-use practices that align with epidemic preparedness objectives.

Results: Key features include (i) nature-risk disclosure tied to zoonotic disease vulnerability; (ii) green bonds and performance-linked loans for deforestation-free production; (iii) certification schemes and traceability systems; and (iv) integration of carbon market and blockchain tools to track ecological risk mitigation. This systems innovation platform positions Lassa fever as a nature-related financial risk and integrates public health into climate and biodiversity finance.

Conclusion: A cross-sector investor alliance can strengthen Nigeria's One Health strategy by embedding upstream zoonotic risk reduction into agricultural value chains. This model not only addresses spillover drivers but also enhances co-benefits across climate, biodiversity, and health domains, offering a replicable solution for epidemic financing in LMICs.

Keywords: *Lassa fever, land-use change, zoonotic spillover, sustainable finance, One Health, nature-related risk*

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Oral 143

Enable 1.5 – Implementing lessons learned from the Enable 1.0 study

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Introduction: Enable 1.0 was the largest Lassa Fever (LF) cohort study, estimating the incidence of Lassa virus (LASV) infection and LF disease. Here, we report Enable 1.0's successes and challenges, and how these translate to Enable 1.5. Enable 1.0 fieldwork ran from 2020–2023 in Nigeria, Sierra Leone, Liberia, Benin, and Guinea, involving 27,000 participants followed for approximately two years. Disease cohort participants ≥2 years were followed up biweekly through in person or telephone consultations.

Methods: Suspected cases had fever present or reported in the preceding fortnight plus other symptom(s) indicative of LF and underwent testing by RT-PCR. LF cases were hospitalised, and medical record information extracted. Hearing assessment at discharge and four months later determined sensorineural hearing loss (SNHL).

Results: Blood samples were taken six monthly from a subset of participants (Infection cohort) to test LASV IgG status. Enable 1.0 identified 39 LF cases. Following community feedback, Enable 1.5 includes all ages to also determine LF burden in young children. As in-person follow up in Enable 1.0 resulted in better rapport and reporting, all follow up will be in person in Enable 1.5, allowing simultaneous clinical assessment. Case definition no longer hinges on fever, aiming to increase the number of suspected cases. As data extraction from medical records for Enable 1.0 was insufficient to analyse LF disease course, Enable 1.5 will actively collect patient data during treatment. Enable 1.0 identified LF cases with SNHL, but preexisting hearing loss was undocumented; Enable 1.5 is measuring hearing status at baseline. Enable 1.5 will conduct qualitative research to determine community understanding of LF and vaccine acceptability. Enable 1.5's one year follow up includes quarterly blood draws for LASV IgG testing.

Conclusion: Enable 1.0 informed Enable 1.5 design, which began in November 2024. Enable 1.0 and 1.5 results will inform future LASV vaccine trial design.

Keywords: *Clinical Trials, ENABLE,*

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Oral 144

Catastrophic Health Expenditure and Coping Mechanisms among Households Affected by Lassa Fever in Edo State, Nigeria

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Background: Lassa fever remains a significant public health concern in Nigeria, often resulting in high out-of-pocket healthcare spending. This study assesses the economic burden of Lassa fever on households, focusing on catastrophic health expenditure (CHE) and coping mechanisms employed to manage treatment costs. To determine the prevalence of catastrophic health expenditure among households with confirmed Lassa fever cases. To identify the coping strategies used by these households in managing the financial burden of illness.

Methods: A facility-based cross-sectional study was conducted among 64 households with confirmed Lassa fever cases in a referral centre in Edo State. CHE was measured using WHO's 40% non-food expenditure and 10% total income thresholds. Coping mechanisms were classified on an ordinal scale from savings to asset sales. Associations between socioeconomic status and use of coping strategies were assessed using logistic regression.

Results: At the 40% threshold, 90.3% of households experienced CHE; at the 10% income threshold, 98.4% experienced CHE. The most common coping mechanism was the use of savings/regular income (34.4%), while asset sales were least used. Lower socioeconomic households were 5.8 times more likely to resort to loans compared to upper-class households (p=0.017). Some households sold productive assets such as sewing machines and motorcycles, potentially worsening long-term poverty.

Conclusion: Lassa fever places a significant economic burden on affected households, with a high prevalence of CHE and reliance on detrimental coping mechanisms, especially among the poor. These findings highlight the urgent need for improved financial risk protection and disease-specific policy interventions to prevent impoverishment.

Keywords: *Lassa fever, Catastrophic health expenditure, coping mechanism, households, out-of-pocket, healthcare spending*

Abstract ID: ELIC2025417
Poster 001

Assessing Knowledge, Attitudes, and Preparedness of Primary Healthcare Workers for Lassa Fever Response in Border Communities of North-East Nigeria

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Background: Lassa fever continues to challenge health systems across West Africa including underserved border communities with porous entry points. Healthcare workers (HCWs) in these regions often serve as first responders, yet little is known about their preparedness to identify and manage suspected cases. This study aimed to assess the knowledge, attitudes, and preparedness of primary HCWs for Lassa fever response in Adamawa State, Nigeria.

Methods: A cross-sectional study was conducted in February–March 2025 among 120 HCWs involved in direct patient care from 16 primary health centers across three border local government areas of Adamawa State, Nigeria: Mubi North, Mubi South, and Maiha. Participants were recruited using convenience sampling. Eligibility criteria included clinical staff present during the study period; administrative personnel were excluded. A structured questionnaire assessed knowledge (diagnosis, transmission, prevention), attitudes, and response readiness to Lassa fever based on national case definitions. Data was analyzed using SPSS v25. A preparedness index score was developed from facility characteristics and HCWs responses to categorize centers as low, moderate, or high-risk for Lassa response. Qualitative data from in-depth interviews with 10 facility heads were analyzed thematically to provide contextual insights. Ethical approval was obtained from the Adamawa State Health Research Ethics Committee.

Results: Out of the 120 HCWs surveyed, only 46 (38%) identified all key symptoms of Lassa fever, 53 (44%) were unaware of the Nigeria Centre for Disease Control reporting protocol.86 (72%) expressed concern about Lassa outbreaks, just 28 (23%) reported receiving training on case identification or infection, prevention and control. Based on the preparedness index, only 2 of 16 health facilities had an isolation room, and none had Personal Protective Equipment stocks sufficient for more than one week. Interviews with facility heads revealed key challenges including staff shortages, limited access to training, and weak referral pathways.

Conclusion: HCWs in border communities of North-East Nigeria remain underprepared to effectively respond to Lassa fever threats. Training gaps and weak facility-level systems may undermine early detection and containment efforts. Targeted investment in capacity-building and supply chain readiness in these frontline facilities is critical to strengthening Nigerias epidemic preparedness at cross-border levels.

Keywords: *Boarder, Preparedness, Lassa Fever, Health Care Workers (HCWs), Health Facilities*

Assessing and Prioritizing Clinical Trial Sites for Phase 3 Lassa Fever Vaccine Trials in West Africa: A Regional Site Assessment Initiative.

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Background: The increasing threat of Lassa fever (LF) in West Africa highlights the urgent need for trial-ready infrastructure to support vaccine efficacy studies. In response, the Advancing Research Capacity in West Africa (ARC-WA) project funded by the Coalition for Epidemic Preparedness Innovations (CEPI), is identifying and assessing clinical trial sites across Lassa-endemic countries to establish a network of Good Clinical Practice (GCP)-compliant sites for Phase 3 LF vaccine trial and strengthen regional capacity for rapid epidemic response. To assess and strengthen clinical trial site readiness for Phase 3 LF vaccine trials using standardized feasibility tools and active stakeholder engagement.

Methods: A comprehensive desk review of clinical research registries and networks was first conducted to generate a preliminary list of potential trial sites, refined through national stakeholder consultations. Subsequently, site assessments were conducted using structured Site Feasibility Assessment Questionnaire and an epidemiology module. Sites were scored on key domains (infrastructure, staffing, accessibility, engagement, past experience), using a weighted scale and qualitative inputs. Finally, findings were reviewed and validated during a regional workshop. Designated national hubs and spokes were selected based their composite score.

Results: Between September 2024 to February 2025, 36 sites were assessed. Preliminary results show diverse capabilities across countries. High-scoring sites based on their composite score were designated as hubs, while sites located in priority epidemiological areas with key feasibility gaps related to equipment, infrastructure, human resource and quality management systems were classified as spokes, warranting targeted support for trial readiness.

Conclusion: ARC-WA initiative has successfully generated a prioritized list of sites to support Phase 3 Lassa fever vaccine studies. This evidence-based framework will now guide targeted validation and capacity strengthening efforts. The hub-and-spokes model enhances scalability, promote equitable site inclusion, and responsiveness for future vaccine trials in West Africa.

Keywords: Lassa Fever; Site Feasibility; Vaccine Trials; West Africa; Hub-and-Spokes Model

Abstract ID: ELIC2025207
Poster 003

Human seroprevalence and risk factors for *Mammarenavirus lassaense* exposure in rural Nigeria: The SCAPES baseline cross-sectional study

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Introduction: Lassa fever, caused by *Mammarenavirus lassaense (*LASV), is a substantial public health threat in West Africa. While LASV transmission is spatially heterogeneous, local drivers of exposure are poorly characterised. As part of the SCAPES study, we conducted a baseline cross-sectional survey to estimate LASV seroprevalence and identify demographic, behavioural, environmental, and spatial correlates of exposure in rural Nigerian communities.

Methods: Nine villages across Benue, Ebonyi, and Cross River states were selected using a structured prioritisation tool. Approximately 20% of households per village were recruited using systematic sampling. One adult male, one adult female, one adolescent, and one child (<12 years) were enrolled per household. LASV IgG was measured from dried blood spots using a commercial ELISA. Questionnaire data on potential exposures were collected, guided by a systematic review of LASV risk factors. Bayesian generalised linear mixed models estimated seroprevalence and associations with exposure variables, accounting for household clustering. Clustering was assessed using Moran's I and Getis-Ord Gi* statistics.

Results: From December 2023 to July 2024, 1,926 individuals from 577 households (27% of households in study villages) were enrolled. Overall LASV IgG seroprevalence was 3.3%, with state-level estimates ranging from 1.6% (Ebonyi) to 5.2% (Cross River). Rodent exposure was nearly universal (94%), yet behaviours to limit contact varied. No consistent demographic, behavioural, or environmental risk factors were associated with seropositivity. Age-seroprevalence patterns varied markedly across villages. Spatial analyses did not identify consistent hotspots, and household-level seropositivity showed no significant spatial autocorrelation.

Conclusions: LASV exposure in rural Nigeria appears to be driven by highly localised, context-specific factors, with limited evidence for generalisable risk profiles or spatial clustering. These findings challenge the utility of broad geographic targeting for Lassa fever interventions and support household-level mitigation strategies grounded in One Health principles. Longitudinal components of SCAPES will examine temporal dynamics and animal-human transmission.

Keywords: *Seroprevalence, One Health, Zoonotic exposure, Rodent-borne disease, Bayesian analysis, Spatial epidemiology, Nigeria, Risk factors*

The Institute of Lassa Fever Research and Control: An Indigenous Interventional Initiative in Lassa fever Control

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Introduction: Lassa fever, a viral hemorrhagic illness, is endemic to West Africa. Initially characterized by seasonal outbreaks, the disease has evolved into a year- round leading to nosocomial outbreaks, deaths among health workers, increase maternal mortality and significant impact on public health. This impact necessitated a pragmatic intervention effort.

Methods: The Institute of Lassa Fever Research and Control (ILFRC) recently renamed Institute of Viral and Emergent Pathogens Research and Control (IVEP) was established in 2007 at Irrua Specialist Teaching Hospital (ISTH) in Nigeria as an indigenous initiative. The institute focuses on surveillance, early lab diagnosis, case management, research, staff training, community outreach and education to mitigate the impact of Lassa fever. The institute has become a regional hub for capacity building in molecular diagnostics, case management and recently clinical trials.

Result: The advent of the institute has led to a reduction in the mortality from Lassa fever cases admitted at ISTH from 60% in the nineties to less than 10% in recent years. Long term partnership of over 15 years with WHO collaborating centres such as the Bernhard Notch Institute For Tropical medicine, Hamburg has been developed. In 2019, the Institute in collaboration with partners trained 15 laboratory personnel from 7 West African countries including DRC. Presently, the Institute supports the CEPI Enable Lassa fever program. Furthermore, clinical trials geared towards the development of Lassa fever vaccine and novel therapeutics are dependent on the existing capacity in the institute. Upcoming projects include combating a range of viral diseases, thereby strengthening global health security.

Conclusion: This comprehensive approach to Lassa fever control, from an indigenous initiative to a regional hub for partnership in Lassa fever control, highlights the ongoing efforts and future directions in managing this endemic disease in West Africa.

Keywords: *Lassa fever, Partnership, Regional control, Institute*

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Poster 005

Assessing the Quality of Lassa Fever Surveillance Data Across West African Countries: An Analysis of the WAHO Regional Data Portal

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Introduction: Lassa Fever, a viral haemorrhagic disease endemic to West Africa, demands strong crossborder surveillance and timely data sharing to support effective control efforts. The West African Health Organisation (WAHO), through its Regional Centre for Surveillance and Disease Control (RCSDC), coordinates disease intelligence via a regional data portal. This study examines how well national surveillance data aligns with what is reported to the WAHO portal.

Methods: We analyzed Lassa Fever data submitted to the WAHO (https://data.wahooas.org/outbreaks), portal from January 2023 to December 2024, focusing on suspected and confirmed cases and deaths. National Situation Reports (SitReps) from Nigeria, Ghana, and Liberia were reviewed, and descriptive statistics (frequencies and proportions) were used to assess concordance between the national and regional figures using Stata Version 18.

Results: Between January 2023 and December 2024, national SitReps from Nigeria, Ghana, and Liberia reported 19,947 suspected cases, 2,783 confirmed cases, and 497 deaths. In contrast, the WAHO portal recorded only 253 suspected cases, 57 confirmed, and 30 deaths. Nigeria's reports showed 9,155 suspected cases, 1,270 confirmed, and 227 deaths in 2023, and 10,098 suspected, 1,309 confirmed, and 214 deaths in 2024, none of which was reflected on the portal. Ghana's 2023 data recorded 30 suspected, 27 confirmed cases, and 1 death, but the portal reported only 14 suspected/confirmed cases and 1 death. Liberia's 2024 SitReps reported 225 suspected, 39 confirmed, and 11 deaths, while the portal showed 90 suspected, 11 confirmed, and 13 deaths suggesting overreporting of deaths

Conclusion: There is a significant gap in data concordance between national SitReps and regional reporting on the WAHO portal. Underreporting and inconsistencies undermine efforts to conduct timely regional risk assessments and coordinated responses. Strengthening data harmonization and coordination processes as well as improving real-time reporting mechanisms are essential for regional epidemic preparedness and response

Keywords: *Disease Surveillance, Data Quality, Health Information Systems, One Health*

Abstract ID: ELIC2025240
Poster 006

Strengthening Regional Laboratory Networks and Collaborative Research on Emerging Pathogens: The Role of the Molecular Research Facility at Abubakar Tafawa Balewa University Teaching Hospital, Bauchi

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Introduction: Emerging and re-emerging infectious diseases, particularly viral haemorrhagic fevers like Lassa fever, Ebola, and yellow fever, continue to challenge public health systems in West Africa. The COVID-19 pandemic caused significant global mortality but also advanced modern laboratory and clinical diagnostics, raising new research questions. The Molecular Genetics and Infectious Disease (MOGID) Research Laboratory at Abubakar Tafawa Balewa University Teaching Hospital (ATBUTH) in Bauchi, Nigeria, is an NCDC-optimized facility for RT-qPCR diagnostics of Lassa virus (LASV), SARS-CoV-2, Monkeypox (Mpox), and Varicella zoster virus (VZV). It serves Bauchi and neighbouring states including Borno, Gombe, Taraba, and Yobe. The laboratory plays a central role in surveillance, diagnostics, and outbreak response. To highlight the MOGID laboratory as a strategic centre for collaborative research and sustainable capacity building aimed at closing research and preparedness gaps for emerging and re-emerging pathogens in West Africa.

Methods: We conducted a descriptive assessment of the facility's diagnostic capabilities, service coverage, and ongoing collaborations. Emphasis was placed on its integration with clinical services and potential for regional R&D partnerships**.**

Results: The state's surveillance activities have positioned the laboratory as a central link for service delivery in patient care and treatment outcomes. Through ongoing support from donors and national stakeholders, the laboratory has developed a strong foundation for collaborative scientific research, workforce development, and operational readiness for public health threats**.**

Conclusion: There is a great opportunity for collaborative research, data sharing, and the exchange of resources and expertise with other institutions and countries. Such partnerships can address research gaps and help shape sustainable strategies for the prevention of disease emergence. Our participation in collaborative research efforts will contribute significantly to the regional infectious disease research agenda and enhance preparedness for future outbreaks**.**

Keywords: *Diseases, emerging, collaboration, research and development*

Strengthening Cross-Border Surveillance and Data Sharing: Insights from Gombe State's Lassa Fever Outbreak and Response

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Introduction: Lassa fever (LF) endemicity in West Africa poses amplified risks due to population mobility and health system gaps. A LF outbreak in Gombe State, Nigeria (December 2024–February 2025), a non-hotspot state exposed gaps in regional health security, cross-border surveillance and coordination. The index case (a traveler from Taraba State) highlighted interstate border transmission risks. This study reviews Gombe state's 2024/2025 LF outbreak data to strengthen LF outbreak control, enhance future outbreak preparedness and effective regional collaboration.

Methods: Nigeria's National Rapid Response Team (NRRT) conducted a descriptive cross-sectional study of Gombe state LF cases between December 2024–February 2025 across nine (82%) of the Local Government Areas (LGAs) from 12th–27th February 2025. Activities included active case finding, retrospective health record reviews, laboratory testing, Infection Prevention and Control (IPC) assessments, environmental assessment, community engagement and interstate collaboration. Interventions focused on strengthening IPC programs, harmonizing surveillance data, and promoting cross-border collaboration.

Results: A total of 11 confirmed cases and 6 deaths (55% CFR) were recorded. Six (55%) of the confirmed cases were from Taraba (5) and Bauchi (1) respectively. Challenges included fragmented surveillance data (30% completeness pre intervention), inadequate IPC infrastructure 40% compliance and weak interstate coordination. Post intervention, improvements were recorded in data harmonization (87% post intervention), enhanced IPC compliance (75% facilities), increased community awareness (90% coverage) and high-level advocacy for regional collaboration among the neighboring northeastern states.

Conclusion: The NRRT's integrated approach during the LF response in Gombe demonstrates the value of multisectoral, cross-border, and regional coordination in stopping infectious disease transmission, ensuring national health security and providing a scalable model for managing future outbreaks in non-hotspot states. Institutionalizing cross-border surveillance and sustaining regional collaboration, supported by regional funding (Northeast Development Commission) and policy mandates are essential for long term public health resilience in Nigeria.

Keywords: *Lassa fever, surveillance, preparedness, Nigeria, regional coordination.*

Intervenir en contexte de fièvre hémorragique de Crimée-Congo au Sénégal : Comment les sciences sociales permettent-elles d'orienter les interventions

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Introduction : La fièvre hémorragique de Crimée-Congo (FHCC) circule au Sénégal depuis les années 1960, avec une recrudescence notable en 2023 touchant deux tiers des 14 régions du pays. En janvier 2025, un nouveau cas mortel a été confirmé dans la région de Kaffrine, illustrant la menace persistante de cette pathologie pour la santé publique sénégalaise. Une équipe pluridisciplinaire a été mobilisée pour appuyer l'investigation et la riposte. L'objectif de cette étude est de décrire l'intervention socio-anthropologique déployée dans ce contexte d'urgence sanitaire et d'analyser son rôle dans l'adaptation culturelle des interventions.

Méthode : L'étude adopte une démarche qualitative basée sur l'observation participante lors d'une mission d'intervention du 18 au 25 janvier 2025 dans la commune de Mbirkilane au Sénégal. Les données proviennent d'observations directes, d'entretiens semi-structurés ainsi que de deux focus groups. La triangulation des données a été assurée par les débriefings quotidiens avec l'ensemble de l'équipe d'investigation.

Résultats : L'annonce par l'équipe médicale du caractère contagieux et mortel de la maladie a provoqué une peur profonde dans la communauté. Les relations avec les villages environnants se sont détériorées et les habitants ont peur de se rendre dans les localités voisines, notamment pour leurs achats habituels. Plusieurs rumeurs circulent dans les villages environnants. Les habitants expriment un besoin urgent d'informations précises sur la maladie, incluant les causes, les modes de transmission, les manifestations cliniques et les mesures de protection à adopter. Les préoccupations s'étendent aux dimensions sociales, notamment la gestion des relations avec les autres villages et les risques de stigmatisation.

Conclusion : Les investigations socio-anthropologiques ont montré que la réussite des interventions sanitaires ne dépend pas uniquement de leur pertinence technique, mais également de leur acceptabilité sociale et de leur adéquation aux réalités locales.

Keywords : *Fièvre hémorragique de Crimée-Congo (FHCC), Intervention socio-anthropologique, Urgence sanitaire, Acceptabilité sociale Sénégal*

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Poster 009

Dynamique de transmission et facteurs associés à la dengue dans le District de Bamako, 2023-2024.

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Introduction : Vu la réémergence de la dengue depuis 2020 et l'ampleur de cette épidémie de 2023, nous avons décidé d'apprécier la dynamique de transmission et les facteurs associés à la dengue dans le District de Bamako.

Méthodes : Une étude transversale analytique sur la période du 1er décembre 2023 au 31 août 2024 avec administration d'un questionnaire aux sujets fébriles répondant à la définition de cas dengue a été réalisé. Des études entomologiques et virologiques ont été réalisées pour déterminer les paramètres entomologiques de la transmission et le niveau d'infectiosité des moustiques.

Résultats : Sur les 765 personnes incluses dans l'étude, 98,2% (751/765) ont acceptés le test parmi lesquels 21,5% ont été confirmés positives aux IgM. Le sexe féminin était le plus représenté avec 63,4% des cas positifs. Les classes d'âges les plus touchées étaient 0-9 ans (31,1%) et 20-29 ans (30,4%) des cas positifs (p<0,001). Plus de la moitié (53,1%) des cas positifs était dans la Commune I du District de Bamako (p<0,001). La fièvre, les céphalées, la fatigue, la toux, le rhume et les vomissements étaient significativement associés aux cas de dengue (p<0,001). *Aedes aegypti,* a été le seul vecteur de la dengue retrouvé lors de notre enquête avec 66,9% (1584/2366). La présence de gite larvaire dans la concession (p=0,012), d'un microclimat (p=0,006), de moustique dans la maison (p=0,026) était significativement associé aux cas positifs. Les indices récipients et de Breteau étaient respectivement de 39,3% et 12,9%.

Conclusion : La tranche d'âge de 0-9 ans, le sexe féminin et la Commune I du District de Bamako étaient les plus touchées. Nous retenons que le District de Bamako était vulnérable à un risque de transmission élevé de dengue. Ainsi le renforcement de la lutte anti vectorielle et la sensibilisation de la population sur les mesures préventives s'avèrent nécessaire.

Mots clés : *dengue, dynamique de transmission, Bamako.*

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Poster 010

INVESTIGATION OF A CROSS-BORDER CASE OF LASSA FEVER IN WEST AFRICA

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Background: Infectious disease prevention and control strategies require a coordinated, transnational approach. To establish core capacities of the International Health Regulations (IHR), the World Health Organization (WHO) developed the Integrated Diseases Surveillance and Response (IDSR) strategy. Epidemic-prone Lassa fever, caused by Lassa virus, is an endemic disease in the West African countries of Ghana, Guinea, Mali, Benin, Liberia, Sierra Leone, Togo and Nigeria. It's one of the major public health threats in these countries. Here it is reported an epidemiological investigation of a crossborder case of Lassa fever, which demonstrated the importance of strengthened capacities of IHR and IDSR.

Case presentation: On January 9th, 2018 a 35-year-old Guinean woman with fever, neck pain, body pain, and vomiting went to a hospital in Ganta, Liberia. Over the course of her illness, the case visited various health care facilities in both Liberia and Guinea. A sample collected on January 10th was tested positive for Lassa virus by RT-PCR in a Liberian laboratory. The Guinean Ministry of Health (MoH) was officially informed by WHO Country Office for Guinea and for Liberia.

Conclusion: This case report revealed how an epidemic-prone disease such as Lassa fever can rapidly spread across land borders and how such threat can be quickly controlled with communication and collaboration within the IHR framework.

Keywords: *Lassa fever, Cross-border, Outbreak investigation, Guinea, Liberia, West Africa*

Lassa fever case management capacity in ECOWAS: A multi-country epidemiological and operational assessment (2020–2024)

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Introduction: Lassa fever is a zoonotic viral hemorrhagic disease endemic to West Africa, with a significant burden in ECOWAS countries. Transmitted primarily through Mastomys natalensis rodent excreta and human-to-human contact, it has high case fatality rates (CFR) and causes nosocomial outbreaks due to delayed diagnosis and weak infection prevention and control (IPC). Despite frequent outbreaks, case management remains fragmented, with disparities in diagnostics, treatment access, and IPC implementation.
This study assessed Lassa fever case management capacity in ECOWAS countries from 2020–2024 to identify gaps in clinical care, laboratory infrastructure, and healthcare worker (HCW) preparedness, informing policy recommendations for improved epidemic response.

Methods: A cross-sectional, multi-country assessment was conducted from 2020–2024 using data from national surveillance systems, treatment centers, and public health institutions. A standardized questionnaire targeted:

- **Study population:** National health agencies, hospitals, and Lassa treatment centers
- **Eligibility:** Facilities managing Lassa cases or involved in surveillance
- **Data collection:** Surveys, interviews, and retrospective data review
- **Outcomes:** Case counts, fatalities, CFR, lab capacity (RT-PCR and turnaround), IPC measures, treatment protocols, HCW training, and cross-border coordination
- **Analysis:** Descriptive statistics to assess regional disparities

Results: Between 2020–2024, 42,301 suspected Lassa cases were reported in ECOWAS, with 5,716 confirmed and 1,130 deaths (CFR: 20%). Nigeria had the most confirmed cases (5,345) and an 18% CFR; Sierra Leone had a CFR of 67%. Lab turnaround varied: Nigeria (66 hrs), Ghana (108 hrs), Liberia (48 hrs). Treatment guidelines and Ribavirin access were inconsistent. HCW training was lacking in several countries. Poor cross-border data-sharing further weakened preparedness.

Conclusion: Critical gaps remain in diagnostics, treatment, HCW training, and regional coordination. Urgent priorities include standardizing protocols, strengthening labs, training HCWs, and enhancing data-sharing. A unified, regionally coordinated response is vital for improved Lassa fever control.

Keywords: *Lassa fever, case management, ECOWAS, viral hemorrhagic fever, infectious disease preparedness, public health response*

Abstract ID: ELIC2025228
Poster 012

Enhancing Cross-Country Collaboration to Strengthen Outbreak Control and Healthcare Systems for Lassa Fever and Other Viral Hemorrhagic Fevers in Sierra Leone and Neighboring Countries (Guinea and Liberia)

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Introduction: Viral hemorrhagic fevers (VHFs), particularly Lassa fever, pose a significant public health threat in West Africa, especially in Sierra Leone, Guinea, Liberia, and parts of Nigeria. Factors such as high population mobility, porous borders, and weak public health infrastructure complicate outbreak control. Despite regional frameworks for disease management, challenges like inadequate surveillance and poor healthcare access persist. Strengthening cross-border collaboration through joint planning and real-time information sharing is vital to mitigate VHF transmission. This study evaluates the importance of regional coordination and collaboration in enhancing preparedness for Lassa fever and other VHFs in Sierra Leone and neighboring countries. It emphasizes integrated strategies for more effective outbreak responses and aims to develop a sustainable framework to reduce VHF-related illness and death in the region.

Method: A desk review of quantitative and qualitative data from 2023 to 2024 was conducted, including reports from the National EOC, WHO, and CDC. Interviews with health officials in Sierra Leone, Guinea, and Liberia provided insights into operational challenges and best practices, identifying trends and gaps in outbreak management.

Results: In Sierra Leone, 702 VHF cases were reviewed, primarily in rural areas like Kenema District. Cases were nearly evenly distributed by gender, with significant impacts on children under five and vulnerable populations. In Guinea, most cases were concentrated in the Forest Region, with recurring seasonal outbreaks. Gaps included delayed detection and underreporting. In Liberia, the burden was significant in Bong, Lofa, and Nimba counties, with a high fatality rate and infections primarily in rural areas.

Conclusion: The findings highlight the urgent need for enhanced regional cooperation to address Lassa fever and other VHFs. Strengthening collaboration through harmonized surveillance, shared data, and joint responses can reduce disease transmission and mortality. A formalized cross-country preparedness mechanism will improve health security in Sierra Leone, Guinea, and Liberia, with a focus on community health systems and frontline worker protection.

Keywords: *Viral Hemorrhagic Fevers (VHFs)., Lassa Fever, Public Health Threat, West Africa, Sierra Leone, Guinea, Liberia, Outbreak Control, Population Mobility, Collaborative Strategies, Surveillance, Healthcare Access, Regional Coordination, Disease Management, Preparedness Framework, Data Review, Epidemiological Insights, Operational Challenges, Health Security, Community Health Systems, Frontline Worker Protection*

Vers une surveillance coordonnée des maladies zoonotiques en Côte d'Ivoire : Mise en œuvre de l'Outil Opérationnel de Surveillance et de Partage d'information (SIS-OT)

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Introduction : Les maladies zoonotiques, résultant des interactions entre l'humain, l'animal et l'environnement, représentent un défi majeur en Afrique de l'Ouest. Pour y faire face, la Côte d'Ivoire a mis en œuvre le SIS-OT élaboré par la FAO, l'OMS et l'OMSA.

Méthodologie : Un atelier national s'est tenu en février 2025, réunissant 55 experts des secteurs de la santé humaine (21), animale (18), environnementale et végétale (16). Le workbook SIS-OT, basé sur 32 activités réparties en cinq domaines (pré-planification, évaluation, planification, mise en œuvre, suivi-évaluation), a été utilisé pour évaluer les capacités existantes. L'atelier a permis de prioriser les actions, d'identifier les ressources et d'élaborer un plan quinquennal.

Résultats : Trois zoonoses prioritaires ont été retenues : la rage, les virus respiratoires et les fièvres hémorragiques. L'évaluation des capacités selon les 32 activités du SIS-OT a révélé 19 activités au niveau cible 1, 7 au niveau 2, 4 au niveau 3, et seulement 2 activités au niveau complet. En pré-planification, la capacité est modérée (niveau 2), marquée par une reconnaissance des parties prenantes mais une structuration stratégique faible. Les capacités sont très limitées en évaluation, traduisant des faiblesses critiques en cadre juridique, infrastructures et laboratoires. En planification, des progrès sont observés en communication coordonnée (niveau 3), mais des lacunes subsistent ailleurs. La mise en œuvre reste faible, sauf pour la notification internationale (niveau complet). Le suivi-évaluation est peu structuré, bien que les exercices de simulation soient réalisés (niveau 3). Une feuille de route comportant 30 activités a été validée, avec un démarrage prévu au second trimestre 2025.

Conclusion : Le SIS-OT marque une étape importante vers une surveillance zoonotique intégrée en Côte d'Ivoire. Il a permis de fédérer les secteurs, d'accroître l'engagement national et de jeter les bases d'un système pérenne.

Mots clés : *Approche ''Une Seule Santé, surveillance coordonnée'' SIS-OT, Côte d'Ivoire.*

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Poster 014

Etude preventive et exploratoire a l'ouest de la Cote D'ivoire contre la virus Lassa en 2019

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Introduction : Le contexte, dans le cadre de la recherche active et quotidienne des maladies à potentiels épidémiques, tout cas de fièvre associée à une hémorragie fait l'objet d'une notification et d'un prélèvement pour confirmation. L'objectif était d'investiguer des cas contacts d'un cas humain de virus lassa dans le district sanitaire de Bangolo.

Methods : Les Méthodes utilisées dans le cadre de cette recherche, il s'agit d'une étude rétrospective allant du 3 au 8 janvier 2019 dans le village de Béoué du district sanitaire de Bangolo. Elles ont consisté en la recherche active de cas contact d'un cas confirmé de Lassa, en la capture et dissection des souris, en la recherche des facteurs de risques environnementaux avec la mise en place de moyens de prévention et de lutte antirabique.

Results : Nos résultats sont à trois volets à savoir le volet humain : au total deux cas suspects ont été notifiés. L'un dans les archives de l'HG de Duékoué et l'autre dans la communauté, le volet environnemental l'hygiène environnementale dans le village de Béoué est favorable au développement du virus Lassa et le volet animal, nous avons 28 petits mammifères dont 27 (96,42 %) rongeurs du genre (Mastomys et Rattus) et un soricomorpha (3,58 %).

Conclusion : Nous pouvons conclure en mettant l'accent sur l''investigation réalisée par l'équipe multidisciplinaire a montré que le risque probable de fièvre de Lassa dans le village de Béoué du district sanitaire de Bangolo à l'Ouest de la Côte d'Ivoire en 2019.

Mots clés: *Virus, Lassa, one Heath, rumeur, zero cas*

Abstract ID: ELIC2025245
Poster 015

Building Resilience: Operationalizing Surveillance and Information Sharing Operational Tool (SIS-OT) for Integrated Zoonotic Disease Surveillance in Nigeria

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Background: Zoonotic diseases are an increasing threat in Nigeria, intensified by rapid urbanization, population density, and complex interactions at the human-animal-environment interface. To address these challenges, Nigeria adopted the Surveillance and Information Sharing Operational Tool (SIS-OT), developed under the Tripartite Zoonoses Guide (TZG) by FAO, WHO, and WOAH. The objective was to assess and strengthen multisectoral surveillance capacities through the One Health (OH) approach.

Methods: A national participatory workshop was held from September 28 to October 1, 2024, with over 60 stakeholders from human, animal, and environmental health sectors, alongside technical partners. Using the Excel-based SIS-OT tool, 32 key surveillance activities were evaluated across five domains: pre-planning, assessment, planning, implementation, and monitoring & evaluation. Discussions focused on four priority zoonoses: Lassa fever, Mpox, Bovine tuberculosis, and Rabies. Capacity levels were scored, and targeted actions were selected to develop a five-year roadmap.

Results: Over half (56.25%) of the activities were at the lowest capacity level, with only 6.25% fully completed. Significant gaps were identified in legal frameworks, workforce planning, infrastructure mapping, and data interoperability. Despite these weaknesses, the presence of a national OH secretariat, increasing political commitment, and strong multisectoral engagement emerged as critical enablers. The final roadmap emphasized strategic actions such as stakeholder engagement, capacity building in data systems, legal harmonization, simulation exercises, and formalizing data sharing mechanisms, while also promoting decentralization of OH coordination.

Conclusion: SIS-OT catalysed essential cross-sectoral dialogue and revealed key structural deficiencies in Nigeria's OH surveillance system. While challenges persist, the developed roadmap offers a clear path to strengthen surveillance and laboratory capacities. Nigeria's experience provides a scalable model for ECOWAS countries aiming to improve zoonotic disease preparedness and response.

Keywords: *Zoonoses, SIS-OT, One Health, Integrated Surveillance, Nigeria, ECOWAS*

Abstract ID: ELIC202539
Poster 016

Enhancing Multisectoral Collaboration for Workforce Development by introducing the One Health Curriculum in Frontline FETP Training in the ECOWAS Region, July 2024.

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Background: The Field Epidemiology Training Program (FETP) in the ECOWAS region focuses on enhancing early detection and rapid response to disease outbreaks. Introducing the One Health curriculum in FETP is critical in addressing public health challenges by integrating human, animal, and environmental health sectors. The One Health Frontline Field Epidemiology Training Program (FETP) curriculum is designed to equip public health professionals with a multidisciplinary approach to address health challenges at the human-animal-environment interface. This regional approach strengthens multisectoral collaboration and ensures a transdisciplinary network of field epidemiologists who can coordinate and share data effectively across sectors.

Methods: A Joint CDC-WAHO training of trainers workshop on One Health FETP Frontline Curriculum was held from July 22 to 26, 2024, in Saly, Senegal. A teach-back method was employed, with participants presenting curriculum topics in PowerPoint, group discussions, and case studies. Mentors from 15 ECOWAS countries were trained to implement the curriculum. They engaged in exercises, multisectoral discussions, and field activity preparations. Feedback on the curriculum was collected daily to improve content and training delivery.

Results: The curriculum integrates epidemiology, veterinary medicine, and environmental health to foster a holistic understanding of disease prevention, detection, and response. A new field activity is the intersectoral site visits so that participants can see how other sectors conduct similar surveillance activities and multi-sectoral outbreak investigations. Sixty participants, including 36 mentors, from 15 ECOWAS countries attended the workshop. Participants represented human, animal, and environmental health sectors, with additional support from development partners like CDC, FAO, WHO, and USAID. The workshop successfully familiarized participants with One Health principles and how to apply them to surveillance, outbreak investigations, and data management. Feedback collected during the workshop highlighted the need for further adjustments in curriculum content and mentor training strategies to accommodate diverse regional needs.

Conclusion: The introduction of the One Health curriculum to the FETP Frontline training in the ECOWAS region successfully built One Health multisectoral collaboration and enhanced public health surveillance capacity. The workshop's outcomes show a promising start toward improved detection, response, and management of zoonotic diseases. Future steps include cascading training at national levels, continued evaluation, and curriculum adaptation to local contexts.

Keywords: *One Health, Field Epidemiology Training Program (FETP), Multisectoral Collaboration, Human ECOWAS*

Abstract ID: ELIC2025391
Poster 017

Urinary schistosomiasis outbreak investigation in Cabo Verde, First description in country, June 2022

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Background: African continent has the high disease burden of schistosomiasis (SCH), 90% of the cases live in the region. Cape Verde is insular country in West Africa, and until then had no reports of schistosomiasis. On May 5, 2022, a patient was reported with presence of Schistosoma haematobium eggs in urinalysis. An investigation was conducted to identify cases, sources and ways to preventing additional cases.

Methods: Two descriptive studies. First, using snowball approach, starting with the first case identified. Second, using retrospective review of medical records. Suspected, confirmed, and discarded case definitions for urinary schistosomiasis (SCHu) were adopted. Phone interviews and urine samples were collected from suspected cases. Analysis were made using Excel. An environmental investigation was conducted to identify of host snail for S.haematobium.

Results: In total, 10 contacts of the index patient were identified, 7 were confirmed, totalizing 8(72.7%) confirmed cases. All male with hematuria and living in Cutelo Gomes (rural São Miguel municipality). Median age was 15 years (range: 7-24), with 3(37.5%) hospitalizations, no deaths. In the interviews, 4(50%) had habit of walking barefoot in water and 3(3.5%) swam in water reservoir tanks. Between September 1st, 2021 and May 10th, 2022, approximately 27,500 medical records were evaluated, from which 49 suspected SCHu case were found. 23(47%) interviewed, 19(82.6%) negatives for S. haematubium and 4(17.4%) did not collect urine samples. Mean age 27 years (DP:16), 18(78.3%) female, 3(13%) had the symptoms on the interview, 11(47.8%) walking barefoot in water and 6(26.1%) swam in water tanks. The environmental investigation found 4 snails genus: Gyraulus; Hydrobia; Lymnaea and Melanoides.

Conclusions: The infection mechanism remains unknown, the specific reservoir genus of snail was not found (Bulinus). A serological survey and environmental assessment in the rainy season, could elucidate risk factors for acquisition of SCHu in this region.

Keywords: *Index patient, serological survey, urinary schistosomiasis*

Abstract ID: ELIC2025331
Poster 018

Multisectoral Environmental Health and Rodent Control Intervention for Lassa Fever Mitigation in Ebonyi State, Nigeria

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Introduction: Ebonyi State is a Lassa fever hotspot in Nigeria as it is the highest burdened South-eastern State, with a case fatality of 18.1%. Close rodent-human interactions drives Lassa fever virus transmission. We implemented a range of One Health interventions and evaluated the outputs across three high-risk local government areas (LGAs) in May 2024: Abakaliki, Ezza North, and Izzi.

Methods: Advocacy sessions, training for health workers, rodent hotspot mapping, and de-ratization using baited rodenticides were implemented. We held advocacy sessions with the State Ministries of Health, Agriculture and Environment and town hall engagement meetings with key state community structures through dialogue sessions. Trainings on rodent ecology, Lassa virus transmission pathways, and integrated vector control techniques were conducted for One Health surveillance officers (Environmental Health Officers (EHOs), health educators, veterinary and public health surveillance officers). We identified rodent hotspots in three Local Government Areas (LGAs) and utilized bait formulations for de-ratization, specifying the types of rats that were present. We thematically analysed the themes from the dialogues and engagement meetings. At the training, pre- and post-tests were used to assess knowledge gained. For data from the rodent hotspot mapping, we computed frequencies and proportions.

Results: Over 150 community members participated in dialogues on infection prevention, hygiene, and rodent control. Post-training assessments showed a 28% increase in knowledge of rodent ecology, Lassa virus transmission, and integrated vector control techniques. We mapped and targeted markets, rice mills, garri processing areas and stores for deratization. We recovered 149 rats, with 47 (31.5%) identified as Mastomys natalensis and Izzi LGA recorded the highest rat burden.

Conclusion: Continued rodent surveillance, sanitation enforcement, state-level One Health integration, and community-led waste management are essential to the control of Lassa fever.

Keywords: *Lassa fever, One Health, Environmental health, Rodent control Risk communication*

Abstract ID: ELIC2025412
Poster 019

A Distributed, Cooperative-Based Digital Health Architecture for Secure Cross-Border Data Sharing and Epidemic Preparedness in ECOWAS: Research Proposal

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Introduction: West Africa faces challenges in controlling Lassa Fever and other viral hemorrhagic fevers due to fragmented health information systems and limited cross-border data sharing. The absence of a unified digital health infrastructure in ECOWAS undermines disease surveillance and emergency response. This research aims to establish a distributed digital health system, leveraging data cooperatives, to enable secure cross-border surveillance and epidemic preparedness.

Methods: This multi-country, mixed-methods study begins with stakeholder interviews, surveys, and analysis of digital health systems in clinics using electronic medical records. Insights from this phase will guide the design and prototyping of a distributed data management architecture based on cooperatives, modeled with BPMN and integrating privacy technologies, interoperability standards, and offline functionality.

Results: Preliminary findings identify ongoing barriers to data interoperability, privacy, and trust in cross-border health data sharing. The proposed system is designed to enable secure, ethical, and user-controlled exchange across ECOWAS, supporting real-time, anonymized data for surveillance and research, while supporting digital health and telemedicine initiatives.

Conclusion: A distributed digital health architecture built on data cooperatives has the potential to bridge gaps in data sharing and epidemics preparedness. This approach aims to enhance regional coordination, empower individuals and health systems, and support the future adoption of improved epidemic surveillance and control by ECOWAS and partner organizations.

Keywords: *ECOWAS, Lassa Fever, Digital Health, Data Cooperatives, Epidemic Preparedness, Surveillance, Data Sharing, West Africa*

Abstract ID: ELIC2025107
Poster 020

Prevalence and Risk Factors for Dengue Virus Infection and Malaria among Febrile Patients in Anambra State, Nigeria, 2024

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Background: Dengue virus and malaria parasites are mosquito-borne pathogens causing febrile illness among people in tropical and subtropical regions. Dengue, often misdiagnosed as malaria, is an epidemic-prone disease in over 90 countries across all WHO regions. We conducted surveillance to determine the dengue serotypes, prevalence and risk factors of dengue and burden of malaria among febrile patients in public hospitals in Anambra State, Nigeria.

Methods: We conducted a cross-sectional study of consenting febrile patients (≥ 1 year of age) from May 2024 - July 2024 in two public tertiary healthcare facilities in Anambra State, Nigeria. We administered semi-structured questionnaires and collected information on socio-demographic characteristics, risk factors and exposures, and clinical features. We collected blood samples for serology (IgG, IgM and NS1) and multiplex real-time reverse transcription polymerase chain reaction (RT-PCR) for dengue and examined thick blood smears for malaria parasites under microscopy. We computed frequencies and proportions and conducted logistic regression analysis to estimate adjusted odds ratios.

Results: Out of 353 participants, 221 (62.6%) were female. The mean age was 29.9 years, and 86.4% resided in urban areas. Dengue infection was identified in 29 (8.2%) of participants. Malaria was identified in 172 (48.7%). Dengue and malaria co-infection rate was detected in 15 (4.5%) participants. Dengue was associated with a higher educational attainment (p=0.043). Urban residents were less likely to test positive for malaria (AOR: 0.4, 95% CI: 0.22-0.82). Only dengue serotype 3 was detected by RT-PCR.

Conclusions: Dengue virus, serotype 3, was found to be prevalent among febrile patients in Anambra State, Nigeria, where it frequently presents as coinfection with malaria. Serotype 3 dengue was consistent with previous investigations of serotypes in Nigeria. Testing for the dengue virus should be considered routinely for patients presenting for care with fever.

Keywords: *Dengue virus, Malaria, Risk Factors, DENV-3, Anambra state*

Scientific research in Field Epidemiology training in Cabo Verde

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Introduction: An Africa Europe consortium was awarded EDCTP funding to implement a Portuguese language Master in Field Epidemiology (MFE) at the University of Cabo Verde. Of the 15 successful applicants [6 from Cabo Verde (CV), 6 from Guiné-Bissau (GB) and 3 from São Tomé e Príncipe (STP)], all completed the theoretical and practical training, obtaining the Postgraduate Diploma in Advanced Field Epidemiology. All opted to continue their training to complete a Master's degree in Field Epidemiology. The aim of this paper is to present the topics for their dissertations.

Methods: The research topics had to be relevant to field epidemiology, focused on the national health systems of the countries, emphasizing a One Health approach and giving priority to antimicrobial resistance. Topics were selected by the students from a list proposed by the MFE coordinators. Students were free to choose outside the list. Each student was allocated a tutorial team, preferably with one Capeverdian teacher and an international supervisor, preferably from the sudent's country; at least one the tutors had to be a PhD holder.

Results: The topics addressed: Antimicrobial resistance (AMR) and HIV/Aids in all countries; Information Systems/epidemiological surveillance and Vaccination in CV and GB; Vector borne diseases (VBD) in CV and STP; COVID-19 and international health regulations (IHR) in GB. All dissertations' proposals were discussed and approved during a seminar in CV, during September 2024. All were submitted to the respective national bioethical committees. Since then, 7 dissertations have been submitted to the Uni-CV: on Information Systems (CV and GB), IHR/COVID-19, HIV/Aids (CV), VBD (CV), vaccination (GB) and AMR (GB). The expectation is that all will be submitted and defended by July 2025.

Conclusions: These field epidemiologists will provide National Public Health Institutes with competencies to conduct outbreak investigations, and to develop epidemiological research and train other epidemiologists.

Keywords: *Field Epidemiology, Cabo Verde, Guiné-Bissau, São Tomé e Príncipe, One Health, National Health Systems*

WAHO's Collaborative Initiatives for Lassa Fever Prevention and Control in the ECOWAS Region.

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Background: Lassa fever is a viral hemorrhagic illness endemic in parts of West Africa, with an estimated 100,000 to 300,000 infections annually, with 5,000 deaths, causing significant morbidity and mortality. The West African Health Organisation (WAHO), as the specialized health institution of ECOWAS, plays a crucial role in coordinating regional efforts to strengthen health systems, enhance disease surveillance, and improve response capacities to Lassa fever outbreaks. Recognizing the need for a collaborative approach, WAHO established key initiatives to control the spread of the disease and mitigate its impact.

Methods: WAHO has implemented multiple interventions, including the establishment of the Lassa Fever Coalition Governing Entity (LGE) to steer regional prevention and control strategies. The organization conducts regular cross-border collaborations, capacity-building programs, and knowledge-sharing webinars. Training workshops have been organized on clinical case management and infection prevention and control (IPC) for healthcare workers. Additionally, WAHO collaborates with CEPI and other partners to accelerate Lassa fever vaccine development and clinical trials.

Results: These initiatives have enhanced regional coordination, with increased participation in webinars, training programs, and the dissemination of knowledge through the Lassa Bulletin. More than 100 health professionals attended the most recent webinar focused on strengthening community-based research. Training-of-trainers sessions have equipped twenty-five healthcare workers with essential skills in clinical management and laboratory diagnosis of Lassa fever. Simulation exercises have bolstered outbreak preparedness and response **mechanisms, while data collection efforts have improved disease surveillance.**

Conclusion: WAHO's Lassa fever initiatives have significantly contributed to strengthening regional preparedness and response. Continued investment in research, training, and surveillance is essential for the sustained control of Lassa fever. Moving forward, WAHO is committed to sustaining collaborative efforts and scaling up vaccine research to mitigate the risk of future outbreaks**.**

Keywords: *Lassa Fever, WAHO, Regional Health Security, Surveillance, Vaccine Development*

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Poster 023

The importance of strengthening environmental and toxicological analyses: selection of two regional laboratories and experience of the Napam Beogo program

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Introduction: In West Africa, few countries have access to routine environmental and toxicological analyses, despite growing food safety risks with significant implications for public health. The unregulated use of pesticides, along with environmental contamination from mining and industrial activities, poses serious threats. Moreover, the organic agriculture sector lacks access to the mandatory analytical tests required for export certification.

Methods: To address these gaps, the West African Health Organisation (WAHO) aims to integrate two toxicological laboratories into its Regional Reference Laboratory Network (RRLR). A standardized questionnaire was developed to assess candidate laboratories on infrastructure, technical expertise, analytical capacity, participation in national and international networks, and implementation of quality management systems. It was distributed to the 15 national institutes of public health (INSPs) across ECOWAS, who were invited to nominate relevant laboratories. In parallel, the gas chromatography–mass spectrometry (GC-MS) method was evaluated as a key technique for identifying and quantifying pesticide residues in food.

Results: Eight out of 15 Member States (53.3%) responded, nominating a total of 10 laboratories. Based on scoring criteria, the top performing laboratories were selected for further assessments to narrow down the choice to two laboratories. These laboratories are ISO-accredited and demonstrate strong technical and institutional capacity. In addition, the Napam Beogo project sent samples to Europe for GC/MS analysis to detect the presence of 660 pesticide molecules, at a cost of €15,000.

Conclusion: The laboratories will be positioned to serve as regional models, promoting best practices in environmental and toxicological testing. Their inclusion in the RRLR will strengthen analytical capacity, support public health surveillance, and strengthen food safety systems. By complementing existing human and animal health laboratories, this initiative advances the One Health approach, integrating environmental monitoring into the broader disease prevention and control agenda.

Keywords: *toxicology, environment, food, pesticides, eternal pollutants*

Abstract ID: ELIC2025310
Poster 024

The Institute of Lassa Fever Research and Control: An Indigenous Interventional Initiative in Lassa fever Control

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Introduction: Lassa fever, a viral hemorrhagic illness, is endemic to West Africa. Initially characterized by seasonal outbreaks, the disease has evolved into a year- round leading to nosocomial outbreaks, deaths among health workers, increase maternal mortality and significant impact on public health. This impact necessitated a pragmatic intervention effort.

Methods: The Institute of Lassa Fever Research and Control (ILFRC) recently renamed Institute of Viral and Emergent Pathogens Research and Control (IVEP) was established in 2007 at Irrua Specialist Teaching Hospital (ISTH) in Nigeria as an indigenous initiative. The institute focuses on surveillance, early lab diagnosis, case management, research, staff training, community outreach and education to mitigate the impact of Lassa fever. The institute has become a regional hub for capacity building in molecular diagnostics, case management and recently clinical trials.

Result: The advent of the institute has led to a reduction in the mortality from Lassa fever cases admitted at ISTH from 60% in the nineties to less than 10% in recent years. Long term partnership of over 15 years with WHO collaborating centres such as the Bernhard Notch Institute For Tropical medicine, Hamburg has been developed. In 2019, the Institute in collaboration with partners trained 15 laboratory personnel from 7 West African countries including DRC. Presently, the Institute supports the CEPI Enable Lassa fever program. Furthermore, clinical trials geared towards the development of Lassa fever vaccine and novel therapeutics are dependent on the existing capacity in the institute. Upcoming projects include combating a range of viral diseases, thereby strengthening global health security.

Conclusion: This comprehensive approach to Lassa fever control, from an indigenous initiative to a regional hub for partnership in Lassa fever control, highlights the ongoing efforts and future directions in managing this endemic disease in West Africa.

Keywords: *Lassa fever, Partnership, Regional control, Institute*

Abstract ID: ELIC202521
Poster 025

Strengthening Mpox Preparedness and Response in West Africa: A Regional Training and Capacity Building Initiative ECOWAS Region, September 2024.

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Background: To support the prevention of cross-border transmission of Mpox in the ECOWAS region, a regional training workshop was held in Abidjan from September 3–6, 2024. The workshop aimed to enhance the capacity of Points of Entry (PoE) personnel by equipping them with critical knowledge and practical skills. Participants included PoE officers, public health experts, and epidemiologists.

Methods: The curriculum addressed Mpox epidemiology, clinical features, case management, infection prevention and control (IPC), risk communication, and community engagement. Practical sessions on screening, sample collection, and biosafety provided hands-on experience.

Results: Forty PoE staff were trained, and the workshop received an overall satisfaction rating of 84.5%. A total of 81.8% strongly agreed that the sessions were engaging and interactive. Content was rated excellent by 75.4% of participants, with 73.7% affirming its relevance to their roles. The training methodology—including lectures, case studies, group discussions, and simulations—was rated excellent by 83.4%, while 63.6% strongly agreed that facilitators were effective. The majority (81.8%) found the duration appropriate. Notably, 100% of participants reported increased confidence in detecting and responding to Mpox at PoEs and committed to applying their new knowledge.

Conclusion: The workshop highlighted the importance of a multisectoral, collaborative response involving national, regional, and international stakeholders. Recommendations included strengthening surveillance, enhancing diagnostic capacity, and developing standard operating procedures for Mpox response at Points of Entry.

Keywords: *Mpox, Points of Entry, Border Health, Surveillance, Infection Control*

Epidemiological and Environmental Investigation of the January 2025 Lassa Fever Outbreak in Edo State, Nigeria

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Introduction: Lassa fever (LF) is a viral hemorrhagic disease with a case fatality ratio exceeding 15% among hospitalized patients and potential for cross-border spread. We investigated the 2025 LF outbreak in Edo State to characterize its epidemiological pattern, assess factors contributing to mortality, and identify environmental conditions associated with rodent access and sources of infection.

Methods: We conducted a cross-sectional study using mixed methods. Cases were line-listed based on the standard case definition and managed at Irrua Specialist Teaching Hospital. Data was extracted from the line-list and clinical records. Environmental assessments were conducted in the homes of seven discharged patients using checklists and interviews. Quantitative data were analyzed descriptively, while qualitative data were categorized thematically.

Results: By epidemiological week (epi-week) 7, 654 suspected and 77 confirmed LF cases were recorded, with 11 deaths (CFR, 14%). The median age of the confirmed cases was 29 years (IQR, 15-43), and 40 (52%) were male. Common symptoms included body weakness (86%), fever (83%), and abdominal pain (70%). Case counts, mortality, and positivity rate peaked in epi-week 2, at 28, 4, and 28%, respectively, before declining by epi-week 7. Three Local government areas, Etsako West, Esan Northeast, and Esan West, accounted for 65 (84%) confirmed cases and all reported deaths. Four of five patients (80%) with hemorrhagic symptoms died. Additional deaths resulted from neurological (2), liver (1), and kidney (1) complications. Rodent access and infestation were likely due to cracked walls, roof-to-wall gaps, bushy surroundings, and inadequate waste disposal sites. Potential sources of infection included open food and water storage practices.

Conclusion: This investigation underscores the population's vulnerability to LF and its associated mortality, hence the need to strengthen surveillance and risk communication. Efforts to reduce transmission should focus on improving environmental sanitation, enhancing rodent control, and promoting safe food and water storage practices.

Keywords: Lassa Fever, Outbreak, Rodents, Mortality.

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Poster 027

Prospects of Lassa Fever Candidate Vaccines

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Introduction: Lassa fever is an acute viral haemorrhagic disease caused by the Lassa virus (LASV). It is endemic in West Africa and infects about 300,000 people each year, leading to approximately 5000 deaths annually. The development of the LASV vaccine has been listed as a priority by the World Health Organization since 2018. Considering the accelerated development and availability of vaccines against COVID-19, we set out to assess the prospects of LASV vaccines and the progress made so far.

Methods: We reviewed the progress made on twenty-six vaccine candidates listed by Salami *et al*. (2019) and searched for new vaccine candidates through Google Scholar, PubMed, and DOAJ from June to July 2021. We searched the articles published in English using keywords that included "vaccine" AND "Lassa fever" OR "Lassa virus" in the title/abstract.

Results: Thirty-four candidate vaccines were identified - 26 already listed in the review by Salami et al. and an additional 8, which were developed over the last seven years. Thirty (30) vaccines are still in the pre-clinical stage, while 4 of them are currently undergoing clinical trials. The most promising candidates in 2019 were vesicular stomatitis virus-vectored vaccine and live-attenuated MV/LASV vaccine; both had progressed to clinical trials.

Conclusions: Despite the focus on COVID-19 vaccines since 2020, LASV vaccine is under development and continues to make impressive progress; hence, more emphasis should be put into exploring further clinical studies related to the most promising types of vaccines identified.

Keywords: *Lassa fever; clinical trials; innovation; vaccine.*

Abstract ID: ELIC2025415
Poster 028

Optimizing Rapid Diagnostic Test Allocation for Lassa Fever in Ebonyi State, Nigeria

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Introduction: Lassa fever (LF) remains a public health threat in Nigeria, with Ebonyi State experiencing recurrent outbreaks. Rapid diagnostic tests (RDTs) are crucial for early detection and outbreak control. Additionally, RDT allocations are uneven especially in resource-limited settings. This scarcity necessitates data-driven allocation strategies, and to the best of our knowledge, no study has assessed this. This study therefore addresses the challenge of equitable RDT distribution by integrating temporal trends and geographic burden to optimize diagnostic coverage.

Methods: We analyzed a five-year (2018–2022) dataset of LF cases from Ebonyi State and assessed temporal trends, seasonality and outbreak patterns using time-series decomposition. Using LF cases per LGA and incorporating LGA population densities, we developed a weighted resource-allocation model which prioritized high-burden LGAs while ensuring baseline coverage for lower-incidence regions. LF case distribution and RDT allocation were visualized using geospatial mapping.

Results: Temporal analysis revealed peak incidence during dry seasons (January–April), correlating with increased human-rodent interactions. The ARIMA model forecasted recurrent outbreaks with 85% accuracy. The model allocated 18.5% of available RDTs to Abakaliki (with the highest burden) and 1.5% to Ivo (with the lowest burden). Two LGAs (Abakaliki and Izzi) which accounted for 25% of the state's population, contributed 40% of LF cases. Geospatial analysis highlighted mismatches between population density and disease burden, informing a need for targeted RDT distribution.

Conclusion: This study demonstrates the utility of temporal-geospatial modeling to guide effective RDT allocation, ensuring equitable access while maximizing outbreak detection. Our recommendations to the Ebonyi State Government include: integrated surveillance that combines epidemiological and ecological data, preemptive RDT deployment during seasonal peaks, and adoption of weighted allocation frameworks. These strategies strengthen laboratory networks by aligning diagnostics with real-time demand, a critical step toward achieving Nigeria's Lassa fever control goals.

Keywords: *Lassa fever, rapid diagnostic tests, resource allocation, temporal analysis, geospatial mapping, Nigeria*

Abstract ID: ELIC2025111
Poster 029

Development of two-step recombinase polymerase amplification assays for incorporation into a multiplexed platform facilitating the identification of the causative agents of viral hemorrhagic fever

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Introduction: Viral hemorrhagic fevers (VHFs) encompass a group of infectious diseases that interfere with the body's ability to clot blood, often leading to serious complications including death. The clinical presentation of VHF's are non-specific, making it challenging to distinguish by symptoms alone, especially from other infections like Malaria that may be co-circulating. There is a need to correctly detect and differentiate these infections, to ensure the correct treatments and control measures are implemented. Multiplex nucleic acid tests enable the screening of multiple targets at once, with techniques like recombinase polymerase amplification (RPA) allowing for rapid detection without the need for complex instrumentation. However, RPA assays are often constricted by the degree of multiplexing that can be carried out concurrently per reaction, while the complex RNA secondary structure has been known to reduce the sensitivity of a one-step RT-RPA reaction.

Method: We explored developing a platform incorporating a two-step RPA system, whereby RNA is first reverse transcribed separately, enabling more efficient cDNA generation subsequently amplified by a panel of assays. We modified five previously described one-step assay assays for the detection of Malaria, Dengue and Ebola. An assay for the detection of Lassa fever virus by RT-RPA was also developed. The optimum conditions for cDNA generation were determined, and sensitivity and specificity of the two-step system evaluated.

Results: The two-step RT-RPA system was found to be compatible with all six RPA assays, showing comparable results to the one-step system. Detection was generally earlier as cDNA was immediately available for amplification, with a stronger fluorescent output noted which may be beneficial at lower concentrations.

Conclusion: Ultimately, we are working with Redbud labs to incorporate these assays into a near point-of-care platform that integrates sample preparation with amplification and detection.

Keywords: *Molecular Diagnostic Testing, Viral hemorrhagic fever, Lassa Fever, Malaria, Ebola*

Abstract ID: ELIC2025409
Poster 030

Evaluation of Four Lassa Virus IgM Immunoassays for Early Detection and Seroprevalence Studies in West Africa

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Background: Immunoglobulin M (IgM) antibodies are the earliest serologic markers of acute Lassa virus (LASV) infection, making LASV-specific IgM assays essential for early diagnosis, particularly when combined with clinical suspicion. In clinical research, IgM assays may be used to assess immune responses to natural infection or vaccination. For reliable utility in such settings, assays should demonstrate high sensitivity (>90%) and specificity (>95%). However, performance data on available LASV IgM assays remain limited. This study evaluates the diagnostic performance of four commercial LASV IgM assays to determine their applicability in seroprevalence assessments and vaccine trials within Lassa-endemic regions.

Methods: This retrospective, multicenter diagnostic evaluation was conducted at three Lassa-endemic sites: Irrua Specialist Teaching Hospital (Nigeria), Kenema Government Hospital (Sierra Leone), and Phebe Hospital (Liberia). Four LASV-specific IgM immunoassays were assessed using archived frozen sera from RT-PCR-confirmed acute Lassa fever cases in Nigeria and Liberia, and LASV antigen-positive cases from Sierra Leone. All samples were collected within 12 weeks of diagnosis. LASV-negative sera were obtained from Gabon (non-endemic), and the U.S. CDC LASV IgM ELISA was used as the reference standard.

Results: In pooled analysis, the ReLASV nucleoprotein (NP) assay demonstrated the highest sensitivity (95.3%, 95% CI: 81.0–99.0), while the BLACKBOX IgM assay showed the highest specificity (91.4%, 95% CI: 85.7–94.9). The ReLASV prefusion glycoprotein (pfGP) assay showed consistently poor sensitivity. Specificity varied by country, with reduced values observed in Sierra Leone. IgM sensitivity versus RT-PCR ranged from 18.5% to 62.3%, and specificity from 80.7% to 99.0%.

Conclusion: Although none of the four assays met ideal diagnostic thresholds, the BLACKBOX IgM assay demonstrates sufficient specificity for use in high-prevalence settings and may be suitable for IgM seroprevalence studies at the evaluated sites.

Keywords: *Lassa Fever, Immunoglobulin M, Serologic Tests, Sensitivity and Specificity*

Abstract ID: ELIC2025188
Poster 031

A broad protection vaccine candidate for Lassa virus lineages: Possibility with Lineage VI

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Introduction: The development of a broadly protective Lassa virus (LASV) vaccine is a critical public health priority. Several promising vaccine candidates are currently in various stages of development; however, most are based on the Josiah strain, which belongs to lineage IV. The extent to which the Josiah strain can confer cross-lineage protection remains uncertain. This study aims to compare representative strains from all known lineages using computational approaches to identify potential candidates for broad-spectrum Lassa virus vaccines.

Methods: A representative strain from each Lassa virus lineage was selected based on glycoprotein (GP) and nucleoprotein (NP) amino acid sequences. These sequences were aligned and analyzed using various comparative genomics and proteomics approaches. Analyses were conducted using the Base-by-Base tool, phylogenetic methods, and the Immune Epitope Database (IEDB). Epitopes with a percentile rank ≤ 0.5% and binding affinity (IC_{50}) ≤ 50 nM were considered to exclude weak-binding ligands. Furthermore, antigenicity, allergenicity, and toxicity of the predicted epitopes were evaluated using VaxiJen 3.0, AllerTOP v2.1, and ToxinPred 3.0, respectively.

Result: The GP lineage IV (Josiah) and V representatives were 66% immunogenic, which is lower than the 100% observed in other lineages. However, the immunogenicity of the NP is 100% for all the selected strains. Additionally, multiple sequence alignment of the glycoprotein gene revealed a unique codon insertion present only in lineages IV and V. Nonetheless, all lineage representatives were predicted to be non-allergenic and non-toxic and possessed a moderate density of B and T cell epitopes with ≥90% conservancy.

Conclusion: Considering the observed relationship of the LASV GPs, antigenic variations, and epitope conservation, lineage VI (KAK-428) is proposed as a promising candidate for the development of a broadly protective LASV vaccine.

Keywords: *Lassa virus, vaccine, broad-protection, Lineage IV, lineage VI*

Genome diversity and understanding the evolutionary relationship of Lassa virus

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Introduction: Lassa fever is an acute viral haemorrhagic illness caused by the Lassa virus (LASV), primarily transmitted through contact with the multimammate rat. The disease is endemic to West Africa, where it is estimated to affect approximately two million individuals annually. Previous diversity studies on LASV relied on partial or complete gene sequences containing undetermined nucleotides ("N"), which can compromise the accuracy and reliability of phylogenetic and evolutionary analyses. To enhance the robustness and credibility of genomic investigations, this study aims to comprehensively assess the genetic diversity of LASV using full-length open reading frames (ORFs) encoding the polymerase, nucleoprotein, and glycoprotein, all free from "N."

Methods: LASV nucleotide sequences were retrieved from GenBank. Sequences exhibiting ≥90% pairwise identity and originating from the same country were clustered into groups. From each group, representative sequences with no "N" within the polymerase ORF were selected. For each chosen L segment (polymerase), the corresponding S segment (nucleoprotein and glycoprotein) from the same viral isolate was also selected, provided it contained no "N." Genetic variability among the selected ORFs was assessed using the Sequence Demarcation Tool (SDT). Multiple sequence alignment was conducted using MAFFT (Multiple Alignment using Fast Fourier Transform), and phylogenetic inference was performed with IQ-TREE2.

Results: The study revealed genetic variability of up to 32%, 26%, and 25% in the polymerase, nucleoprotein, and glycoprotein ORFs, respectively. LASV strains are classified into seven distinct lineages. Notably, lineage VI exhibited a phylogenetic relationship with all other LASV lineages and also showed evolutionary relatedness to other Old World arenaviruses.

Conclusion: The findings of this study suggest that lineage VI may possess ancestral traits, underscoring the evolutionary importance of *Hylomyscus pamfi* in the Lassa virus evolution. We recommend considering lineage VI in the vaccine development for possible broad protection.

Keywords: *Lassa, evolutionary, relationship, diversity, lineage VI*

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Poster 033

Immunoinformatics-Guided Design of a Multiepitope mRNA Vaccine Candidate Against Lassa Virus

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Introduction: Lassa fever remains a persistent public health challenge in West Africa, characterized by high morbidity and mortality. Despite its endemicity, no licensed vaccines are currently available, underscoring the urgent need for innovative vaccine strategies. This study implements immunoinformatics-guided approaches that enable the rapid identification of immunogenic epitopes, facilitating the rational design of mRNA-based vaccines that are safe, effective, and tailored to target specific viral proteins.

Methods: Protein sequences of the Lassa virus (LASV) glycoprotein complex (GPC), L-protein, and polymerase protein were retrieved from the NCBI database. HTL, CTL, and B-cells epitope predictions were performed using NetMHCpan-4.1, IEDB, and BepiPred 2.0. server, respectively. Predicted epitopes were assessed for antigenicity, allergenicity, toxicity, interleukins, and IFN-γ. High-scoring epitopes were assembled into a multiepitope construct linked by the appropriate linker, adjuvants, and translational regions. Secondary and tertiary structure predictions of the mRNA construct were refined, validated, and docked with human TLR-4 and TLR-7.

Results: The mRNA construct shows broad population coverage, particularly in West Africa. The physicochemical properties from ExpasyProtParam server compute a molecular weight of 140.44kDa, with lengths of 1,283 amino acids, an aliphatic index of 83.52, an instability index of 38.70, and a GRAVY score of -0.101. The Ramachandran plot for the validation of the tertiary construct shows that >90% of the amino acids are in the most favored region. The docking complexes scores with TLR-4 and TLR-7 result in -299.56 and -299.77, respectively, showing strong immunogenic potential. In-silico cloning into an mRNA expression vector demonstrated compatibility for mRNA synthesis and efficient antigen expression.

Conclusion: This study underscores the potential of immunoinformatics-driven mRNA vaccine design as a promising avenue for Lassa fever prevention. The predicted multiepitope mRNA construct offers a rational starting point for further experimental validation and preclinical development.

Keywords: *Lassa virus, immunoinformatics, mRNA vaccine, molecular-docking, in-silico*

Mathematical Modeling to Optimize Point-of-Care Diagnostic Accuracy for Lassa Fever Control

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Introduction: Lassa fever (LF), with a sero-prevalence of 21% and mortality rates of 15–20% in Nigeria, remains a critical public health challenge. Early diagnosis is hindered by non-specific symptoms and limitations in rapid point-of-care (POC) test accuracy, leading to delayed treatment and preventable deaths. This study utilized mathematical modeling to optimize POC diagnostic accuracy, addressing gaps in test sensitivity and coverage to curb transmission.

Methods: We adapted a Susceptible-Infectious-Recovered (SIR) compartmental-based model to simulate LF transmission in Ebonyi State, Nigeria. We derived key parameters from literature, including transmission rates, diagnostic positivity/negativity rates (77.4% baseline true positivity), and test coverage. Using scenario analyses we evaluated the impact of varying POC test accuracies (10% and 20% improvements) on disease spread. Geo-spatial and temporal data (2018–2022) informed our model calibration.

Results: Our modeling revealed that improving rapid diagnostic test (RDT) accuracy directly reduces LF transmission. When test sensitivity increased from 77.4% to 97.4%, we detected 16% more cases, effectively removing these individuals from transmission chains. Even a 10% improvement (to 87.4% sensitivity) identified 4% additional cases. The model demonstrates that higher test accuracy leads to increased identification of infections, and with treatment, progressively shrinks the pool of infectious individuals. Conversely, we found that low testing coverage (<50%) delayed outbreak detection by 2-3 weeks, allowing more unchecked transmission. These results show that optimizing RDT sensitivity is crucial for breaking transmission cycles - with the greatest benefits seen when test accuracy approaches 97%.

Conclusion: Optimizing POC diagnostic accuracy is pivotal for interrupting LF transmission. We recommend that the Government of Ebonyi State, and by extension Nigeria, invest in next-generation POC tests with a sensitivity of ≥95%, pre-positioning testings in high-burden regions during peak seasons, and integrating modeling into national surveillance to inform test deployment. These strategies enhance laboratory networks by ensuring timely and accurate diagnostics, ultimately reducing mortality and outbreak risks.

Keywords: *Lassa fever diagnostics, outbreak response, test accuracy, disease modelling, epidemic control*

Abstract ID: ELIC2025230
Poster 035

Lassa virus strians sequenced during the January 2009 – December 2012 Lassa fever epidemics setbacks and prospects of disease burden: An epoch

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Introduction: Study aimed at determining epidemiology and strains distribution of Lassa Virus (LV) in patients attending Irrua Specialist Teaching Hospital (ISTH) and perform molecular characterization of LV in Nigeria.

Methods: Between 2009 – 2012, 4727 suspected cases of LV samples were processed using standard methods. Molecular detection was in Nigeria and Germany, while molecular species and strains identification done in a company in Germany (LCGgenomics, Ostendstrasse Berlin, Germany. Sequences analyzed with SeqMan software (DNASTAR), Virus evolution reconstructed using BEAST software.

Results: Sequence lies within lineage II- a separate clade further subdivided into three clusters. Phylogenetic analyses revealed the relatedness of the new strains Nig 12-451 and 553 to strains from Owerri. Strains from Jalingo were closely related to strains from Onitsha. New strains Nig 11-725 and 870 were closely related to other strains from Edo-State. Order of the branches in lineage II indicated that the virus spread from the South of the country (Port Harcourt, Aba, Owerri, Onitsha, Irrua, Ekpoma, Oheluse) to North Eastern part (Jalingo) of the country.

Discussion: Viral lineages in Nigeria are different from other West African countries – Sierra Leone, Guinea and Liberia. Pathological findings also differ.   The genomic sequences of eight recent Nigerian strains, representing lineage II. These novel sequences will aid in the design of molecular detection assays for LV. Phylogenetic analysis sequences implies the presence of an additional sub-lineage of LV in Nigeria, a directional and transverse-directional evolutionary spread within the country.

Conclusion: Phylogenetic tree shows strains from same geographic area were closely related. In the DNA alignment, nucleic acids positions were conserved in all nucleoproteins in LV. 1st and 2nd positions of the codons for the amino-acids were usually conserved. Mutation takes place in the 3rd positions.

Keywords: Lassa Virus, Lassa fever, Outbreaks, Epidemics, Diagnostics and Sequencing.

Abstract ID: ELIC2025317
Poster 036

Harnessing Computational Immunology to Accelerate Lassa Fever Vaccine Discovery: A Systematic Review

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Introduction: Lassa fever (LF), caused by Lassa mammarenavirus (LASV), is a major public health threat in West Africa. No licensed human vaccine exists, and computational immunoinformatics has emerged as a key tool to accelerate vaccine candidate identification. This systematic review aims to assess the role of computational immunological approaches in identifying promising vaccine candidates for LF.

Methods: A systematic review was conducted using PubMed, JSTOR, and Google Scholar, covering studies from 2000 to 2024. Studies employing computational techniques such as epitope prediction, molecular docking, molecular dynamics simulations, and immunoinformatics targeting LF vaccine development were included. Data screening and extraction were conducted using Rayyan to minimize bias and ensure consistency. Each study was assessed with a refined 13-criterion framework for methodological quality and risk of bias.

Results: Out of 463 articles screened, four studies met the inclusion criteria; all used immunoinformatic tools for LF vaccine candidate identification. Glycoprotein was targeted in all studies (100%), while 50% also addressed nucleoprotein or other structural proteins. Half of the studies reported multi-epitope constructs, incorporating between 6 and 18 CTL, HTL, and B-cell epitopes. Half of the studies used adjuvants (OmpA or human beta-defensin-3). All studies performed epitope prediction, molecular docking, and antigenicity evaluation. Molecular dynamics simulations were used in 75% of studies, and immune simulations in 50%. Population coverage analysis was conducted in 75% of studies, with up to 97% global HLA allele coverage. Risk-of-bias assessment indicated consistent epitope prediction (low risk) but inconsistent vaccine design (moderate risk) due to variable use of adjuvants and simulations. All studies lacked experimental validation, resulting in a high overall risk of bias.

Conclusion: Computational immunoinformatics is a powerful approach for identifying promising LF vaccine candidates. However, integration of experimental validation is essential to advance vaccine development.

Keywords: *Lassa Fever; Vaccine Discovery; Computational Immunology; Immunoinformatics*

The Effects of Temperature Variation and Its Impact on Lassa Virus Molecular Detection at the National Reference Laboratory

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INTRODUCTION: Lassa fever, poses a significant public health concern in West Africa, requiring accurate and timely detection, mainly using RT-PCR for effective management and outbreak control. In Nigeria, network of thirteen laboratories, including the National Reference Laboratory (NRL), conducts this testing. Samples often transported from remote areas and pass through several local logistics before reaching designated testing centres, which risks sample integrity. A key problem is temperature fluctuation during sample transport can trigger RNase activity, degrade viral RNA and compromise RT-PCR results. This study aims to investigate the effect of temperature variation impact on Lassa virus RNA detection by simulating real-world conditions commonly encountered during sample transport in Nigeria.

METHOD: Eight PCR-positive samples were aliquoted into four groups and exposed to different temperature conditions for a period of five days as follows**:** Group 1: –15°C to –20°C (Freezer), Group 2: 2–8°C (Refrigerator), Group 3: ~25°C (Room Temperature) and Group 4: 28°C–33°C (Outdoor Conditions), At the end of the five-day period, all samples from each group were tested using RT-PCR.

RESULTS: The results were compared with the initial PCR results obtained prior to storage. A progressive increase in cycle threshold (Ct) values for both the GPC and L-gene targets was observed from Group 1 through Group 4. Group 1 showed the lowest Ct values, indicating optimal RNA preservation. In contrast, Group 4, recorded the highest Ct values, suggesting significant RNA degradation. Notably, in the L-gene targets for Groups 3 and 4, two out of eight samples yielded false-negative results, with no detectable L-gene amplification within the 45 cycles of PCR

CONCLUSION: These findings emphasize the need to strengthen the pre-analytical phase of Lassa fever diagnostics, especially in decentralized settings where infrastructure and logistics may be limited. Appropriate sample handling and temperature control during transportation is essential for accurate detection and public health responses. Thus, have broader implications for the molecular detection of other RNA viruses in Nigeria, highlighting the necessity for a robust system that preserves Sample integrity.

Keywords: *Lassa fever virus (LF), Ribonuclease Enzyme (RNase), Real Time (RT), Polymerase Chain Reaction (PCR), Cycle Threshold (CT).*

A multi-quarter assessment of sample rejection and cold chain deviations in Lassa fever surveillance in Nigeria, 2024–2025

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Introduction: Lassa fever, a severe viral disease endemic to Nigeria, poses ongoing public health threats, with rapid diagnosis essential for outbreak control. Rising sample rejection rates and unstable logistical temperatures upon sample arrival at the National Reference Laboratory (NRL) compromise diagnostic accuracy. This study examines rejection trends and causes, identifies states with the highest rejection rates, and assesses regional and seasonal temperature deviations from the First Quarter, Second Quarter, Third Quarter, and Fourth Quarter of 2024 to the First Quarter of 2025. Findings aim to guide improvements in sample handling and surveillance logistics.

Methods: This retrospective study analysed 1,929 Lassa fever samples received at the NRL. utilizing Epi Info for descriptive statistics to assess rejection rates, transport temperatures, and trends across states and quarter.

Results: The overall rejection rate was 0.73%, rising from 0.28% in Q1 2024 to 4.08% in Q4 2024, before declining to 2.28% in Q1 2025. No rejections occurred in Q2 2024. Kogi and Ondo had the highest rejection proportions (17.65% each), while Benue, contributing over half of the total samples, accounted for 11.76% of rejections. Predominant causes of rejection were Case Investigation Form (CIF) without samples and sample spillage (35.29% each), followed by mismatched information and missing CIFs (11.76% each), and improper packaging (5.88%). Mean reception temperature was 17.68°C, above the World Health Organization's recommended 2–8°C. The Second Quarter had the highest mean (18.74°C), and the Third Quarter the lowest (15.58°C). Zamfara recorded optimal cold chain conditions (3.2°C), while coastal states such as Rivers and Akwa Ibom recorded elevated rainy season temperatures.

Conclusion: The study reveals that although overall rejection rates were low, temperature instability and documentation gaps significantly compromised sample quality. It emphasizes the impact of these factors on diagnostic reliability and recommends addressing data completeness and transport time to improve outbreak response.

Keywords: *Lassa Fever; Sample Rejection; Cold Chain; Ambient Temperature; Nigeria; Laboratory Surveillance; Case Investigation Form*

Abstract ID: ELIC2025406
Poster 039

Comparative Evaluation of Five Lassa Virus IgG Immunoassays for Seroprevalence Studies and Vaccine Trial Support in West Africa

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Introduction: Serological testing is pivotal in diagnosing Lassa fever and conducting sero-epidemiological studies essential for planning vaccine efficacy trials in endemic regions. However, comparative data on the performance of available Lassa virus (LASV) serologic assays remain limited. To support clinical trials in West Africa, we conducted a comparative evaluation of five LASV-specific IgG immunoassays to determine their diagnostic utility.

Methods: This diagnostic evaluation study was performed at the Irrua Specialist Teaching Hospital, Nigeria, and Kenema Government Hospital, Sierra Leone. A total of 148 archived LASV-RT-PCR-positive sera from Nigeria and 158 LASV-antigen-positive sera from Sierra Leone were tested. LASV-naïve sera from Gabon served as negative controls. The U.S. CDC LASV IgG assay was used as the reference test. Positive percentage agreement (PPA) and negative percentage agreement (NPA) were calculated against either the reference assay or the expected clinical classification based on historical data and sample origin. Country-specific performance metrics were computed for LASV-exposed and LASV-naïve samples.

Results: Among LASV-positive cases by clinical category, 123/158 (Sierra Leone) and 104/148 (Nigeria) were IgG-positive using the reference assay. Four of the five evaluated immunoassays demonstrated PPA ≥90% compared to the reference. Two assays exhibited NPA ≥95% in both countries. Country-level findings aligned with combined analyses, with slightly improved NPA among LASV-naïve versus LASV-exposed but seronegative individuals.

Conclusion: Among the five evaluated IgG assays, the BLACKBOX Lassa NP-IgG ELISA and Lassa IgG DABA ELISA demonstrated high sensitivity and specificity. These assays are suitable for LASV seroprevalence studies and may reliably support future Lassa fever vaccine trials in West Africa.

Keywords: *Lassa Fever, Immunoglobulin G, Serologic assays, Sensitivity and Specificity*

Abstract ID: ELIC2025100
Poster 040

Systematic Review on Lassa Fever Vaccine Development Efforts in Africa – 2000 to 2024

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Background: Lassa fever, an acute viral haemorrhagic illness endemic to West Africa, poses a persistent public health threat, with an estimated 100,000 to 300,000 infections and up to 5,000 deaths annually. Transmission occurs primarily through contact with excreta of Mastomys rats and secondary human to human spread, particularly in healthcare settings. Despite decades of outbreaks, no licensed vaccine exists. The World Health Organization classifies Lassa fever as a priority disease, underscoring the urgent need for effective vaccination strategies. This review evaluates the current landscape of Lassa fever vaccine development within the African context, examining progress, challenges, and opportunities for future interventions.

Method: A systematic review was conducted using databases such as PubMed, Scopus, Web of Science, WHO Clinical Trials Registry, and African Journals Online, focusing on literature from 2000 to 2024. Inclusion criteria comprised studies on Lassa vaccine candidates under preclinical or clinical development involving African institutions or populations. The PRISMA framework guided data extraction and descriptive analysis.

Results: Seventeen Lassa vaccine candidates were identified across various platforms, including viral vectors, mRNA, DNA, and live attenuated vaccines. Four candidates have entered early-stage human trials, notably INO-4500 and rVSVΔG-LASV-GPC. African involvement is growing, with Nigeria, Sierra Leone, and Liberia engaged in clinical research. However, challenges persist: weak regulatory frameworks, dependency on external funding, limited cold chain infrastructure, and cultural barriers to vaccine acceptance. Nonetheless, increased global partnerships and ethical trial practices reflect positive momentum.

Conclusion: While Lassa vaccine development is progressing, substantial gaps in infrastructure, funding, and community engagement continue to hinder scale-up in Africa. Sustained investment in African-led research, regulatory strengthening, and strategic partnerships are vital. Positioning African populations at the centre of vaccine efforts will ensure equity, efficacy, and long-term sustainability in combating Lassa fever.

Keywords: *Lassa fever, Vaccine, Africa, Trials*

Structure-Based Repurposing of Anti-Malaria Drugs to Inhibit RNA-Dependent RNA Polymerase Domain of Dengue Virus

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Introduction: Dengue virus (DENV) is one of the most rapidly spreading mosquito-borne diseases worldwide, causing 100–400 million infections annually, with 96 million of those infections showing signs of severe illness. The RNA-dependent RNA polymerase (RdRp) catalytic domain resides within the NS5 protein from dengue virus and plays a vital role in the production of new viral particles. The aim of this study is to employ a structure-based approach for repurposing anti-malaria drugs to inhibit the RdRp domain of DENV.

Methods: A literature review of approved anti-malaria drugs was performed, and thirty-one (31) drugs were retrieved and downloaded from PubChem in SDF format. The crystal structure of the target receptor (2J7W) was obtained from the Protein Data Bank. The root mean square deviation (RMSD) was computed. The molecular docking and Molecular Mechanics/Generalized Born Surface Area (MM/GBSA) evaluation were performed using the Maestro Schrodinger software user interface. The physicochemical prediction and pharmacokinetic parameters for the top-ranking drugs were assessed using SwissADME web server.

Results: The RMSD superposition for the minimized and redocked ligand was 1.4 Å. The docking scores (kcal/mol)/ MMGBSA (dG Bind) for the top five antimalarial drugs and the co crystalized ligand were tetracycline (6.494)/ (36.69), artesunate (4.4)/ (35.17), chloroquine (4.109)/ (40.66), chlorproguanil (4.021)/ (34.18), 3 hydroxyquinine (4.01)/ (36.95), and co crystalized ligand (6.191)/ (12.02) respectively. The physicochemical and pharmacokinetic properties of the drugs were found to be relatively good.

Conclusion: We identified highly potent inhibitors of dengue virus RdRp from the approved and currently available antimalarial drugs including chloroquine, 3-hydroxyquinine, tetracycline, artesunate, and chlorproguanil. However, in vitro and in vivo studies are required to provide more concrete information on the efficacy of these drugs.

Keywords: *Drug repurposing, anti-malaria drugs, dengue virus, molecular docking.*

Abstract ID: ELIC2025233
Poster 042

Expansion of the Lassa Fever Testing Network in Nigeria

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Introduction: Lassa fever is a viral hemorrhagic illness affecting an estimated 300,000 individuals annually in West Africa, with recurring outbreaks in Nigeria. Its non-specific clinical presentation often mimics other endemic diseases, making laboratory confirmation essential. However, diagnostic capacity has historically been constrained due to the Lassa virus's classification as a Category A pathogen, requiring high-containment (BSL-4) precautions. In low-resource settings like Nigeria, the scarcity of such facilities and trained personnel limits outbreak response. To address these challenges, Nigeria initiated a national program to expand Lassa fever testing capacity by increasing the number of equipped laboratories.

Methods: Launched in 2016, the national LASV diagnostic programme initially included three laboratories. By 2018, these were assigned defined geographical catchment areas. Laboratory sites were selected based on regional burden and testing gaps and underwent baseline safety and infrastructure assessments using a standard checklist developed by the National Reference Laboratory in Abuja. Only laboratories equipped with a BSL-3 glovebox were considered. Following selection, personnel received on-site training on standardized testing protocols. Laboratories were activated after achieving 100% concordance in blinded proficiency testing panels.

Results: Between 2017 and 2022, five additional laboratories were activated, each with an average of seven trained personnel. Initial expansions focused on the southern regions, followed by scale-up in the North after increased case detection during the 2020 outbreak. The new laboratories enhanced diagnostic coverage in emerging hotspot zones. As a result, overall case detection increased, and national turnaround time for results decreased from 72 to 48 hours.

Conclusion: The expansion of Nigeria's Lassa fever diagnostic network has improved geographic accessibility, accelerated diagnostic turnaround, and reduced pressure on the initial three laboratories. This structured, evidence-based approach provides a replicable model for scaling diagnostic capacity in response to changing epidemiological trends.

Keywords: *Lassa fever, Laboratory network, Diagnostic expansion, Nigeria, Biosafety, Turnaround time*

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Poster 043

Evaluation of serum albumin as a prognostic marker in Lassa fever disease.

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Introduction: Lassa fever virus infection (LFVI) is endemic in Nigeria. There is a dearth of data on the clinical and biochemical markers of severe disease and their association with morbidity and mortality in this environment. This study aimed to evaluate serum albumin as a marker of severe disease and mortality at Irrua.

Methods: This was a retrospective review of the medical records of patients with confirmed lassa fever admitted between January 2025 and April 2025. Serum albumin levels were obtained at admission (baseline), 5th and 10th day respectively. These values were correlated with disease progression and disease outcome. Continuous data were presented as mean and standard deviation while categorical variables by frequency and proportions. Chi square was used for test of association. Significant p-value was set at <0.05.

Results: Data from a total of 78 patients were reviewed. The mean age of the patients was 37.6 ± 14.0 years. Majority were males (M:F ratio of 1.43:1).The mean albumin levels in those who died were significantly lower than those who survived at all time points (p= 0.002, 0.049 and <0.0001 at baseline, day 5 and 10 respectively). Acute kidney injury (AKI) was present in almost half of patients with hypoalbumineamia below 3.5 mg/dl (42.6%) while mortality was higher in those with relatively lower albumin levels (below 3.0mg/dl). Mortality was significantly higher with baseline hypoalbuminemia than with normal serum albumin (25.5% vs. 4.2% respectively, p=0.028), although insignificantly less in those who had albumin infusion compared to those who didn't receive albumin.

Conclusion: Low serum albumin level, particularly in the presence of AKI and inadequate doses of albumin infusion impacts on mortality in Lassa fever. The prohibitive cost of albumin infusion in a resource-poor setting is a major challenge. Better health care financing and more studies are recommended to improve survival.

Keywords: *serum albumin, prognostic marker, lassa fever, evaluation.*

Abstract ID: ELIC2025270
Poster 044

Patterns of modified early warning scores in hospitalized Lassa Fever patients: Insights from Irrua Specialist Teaching Hospital

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Introduction: Modified Early Warning Scores (MEWS) are simple physiological scores to monitor early variations in clinical parameters. It allows for the early detection of clinical deterioration and potential need for higher level of care in admitted patients. Any patient with a total score of 3 and above requires additional medical attention and intervention. There is a paucity of data on the use of MEWS in Lassa fever patients. We describe our observation using baseline MEWS in the nursing care of Lassa fever patients in ISTH.

Method: This is a retrospective observational study. We analyzed clinical data of Lassa fever patients admitted in ISTH from March 2023 to February 2024. The individual scores for each domain were reported and then summed to generate the total MEWS. Frequencies and percentages of patients across the different domain score levels were calculated. Pearson's correlation coefficients were calculated for each pair of domains to examine the relationships between them. A p-value of less than 0.05 was considered statistically significant.

Results: A total of 128 patients were monitored. Most patients scored 0 across parameters, except for respiratory rate, where 30% scored 0 and 7% scored 3. For temperature and heart rate, 4.7% and 5.5% scored 3, respectively. Only 8% had a MEWS greater than 5. The median MEWS was 2 (1-3.5). The strongest correlation was between heart rate and level of consciousness, with a Pearson's coefficient of +0.250 (p = 0.004).

Conclusion: The low MEWS values in these patients indicated a stable clinical population at admission. While MEWS is effective for early risk stratification, further research should explore its predictive value for treatment outcomes.

Keywords: *MEWS, ISTH, Lassa fever, Nursing.*

Abstract ID: ELIC2025363
Poster 045

Design and *In-Silico* evaluation of a novel multiepitope-based recombinant DNA Vaccine Candidate against Lassa Hemorrhagic Fever

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Introduction: Emerging and re-emerging infectious pathogens are major threats to global public health. With the continued rise in the number of annual reported cases in Nigeria, the genomic diversity of the virus, as well as the expanding geography and species distribution of its reservoir hosts, Lassa fever has become a foremost endemic neglected zoonosis in Nigeria, with no available vaccine for its prevention globally. The present study aimed to develop a cross protective, multiepitope-based recombinant DNA Vaccine against Lassa Virus strains circulating in Nigeria.

Methods: Several Multiple humoral and cell-mediated epitopes were mapped from each consensus sequences of a total of 69 glycoprotein and 67 nucleoprotein sequences of the Lassa virus (LASV) strains across lineage I, II, III and VI circulating in Nigeria and characterized using high-throughput *in silico* bioinformatics tools to construct a putative LASV vaccine candidate, and the constructed candidate was evaluated *in silico* for its structural and physicochemical properties.

Results: A total of 4, 10 and 3 CTL, HTL and linear B-cell non-toxic, non-allergenic and highly antigenic epitopes, respectively, were mapped and used for the construction of the vaccine candidate. The chimeric LASV vaccine had good expression levels in procaryotic and eucaryotic cells, was thermostable, hydrophobic, non-allergenic, non-toxigenic and highly antigenic. Also, the putative candidate elicited both humoral and cell-mediated immune response, in addition to its induction of interferon gamma after a prime and boost dose-regime. Furthermore, the putative vaccine candidate was able to adapt to the codon usage of *E. coli* and *Cavia porcellus* (Guinea Pig), and successfully cloned in pVAX1 vector.

Conclusion: This study was able to design and construct a high quality LASV vaccine candidate from the circulating strains in Nigeria, preparatory to further downstream *in vitro* and *in vivo* validations and Proof of Concept experiments.

Keywords: *Lassa Virus, Epitopes, DNA, Vaccine, in-silico, Cloning*

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Poster 046

Molecular characterisation of Lassa Virus (Glycoprotein Complex Gene) in febrile patients in Plateau State, Nigeria

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Introduction: The prevalence of Lassa fever has continued to rise over the years, with over 33 years of national outbreaks and more than 18 years of Lassa fever outbreaks in Plateau State since the detection of the index case in Nigeria in 1969. Plateau state is one of the states with significant increased number of Lassa fever outbreaks in the country. This study aimed at characterization of the molecular phenotypes of Lassa virus in febrile patients.

Methods: A cross-sectional study was carried out. Using simple random sampling technique, 240 blood samples were collected from febrile patients (≥38∘C) in the selected Hospitals within the three different zones in Plateau State. Structured questionnaires were administered to obtained information on potential risk factors associated with Lassa virus infection. One-step-conventional RT-PCR was used to screen the samples in a Biosafety Level 3 Laboratory. Positive PCR products were sequenced using a Sanger sequencing platform. The statistical analysis was done using SPSS version 20.0 while the sequence analysis was done using FinchTV software version 1.4.0, EMBOSS: merger and MEGA X.

Results: Of the 240 febrile patients, 9 (3.75%) had Lassa virus; 8 (10.0%) were from the Plateau North zone, 1(1.2%) from the Plateau South, and 0(0%) from the Plateau Central. All the eight (8) sequences that passed quality check in this study clustered phylogenetically with Lassa virus strains under lineage III previously known to circulate around the Northern Nigeria.

Conclusion: This study highlights the presence of Lassa fever among febrile patients who might not typically be screened for the disease, as they do not meet the standard case definition for suspected Lassa fever. This shows that, routine diagnosis for Lassa fever is urgently needed in areas with high Lassa fever transmission rates. Surveillance for Lassa fever among febrile Patients in Plateau State should be a priority.

Keywords: *Lassa fever, Febrile patients, RT-PCR, Sequencing, Plateau state.*

Abstract ID: ELIC2025213
Poster 047

REALISE: A two-year study tracking Lassa fever seroprevalence and contributing risk factors in Guinea's Gueckedou region.

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Introduction: Lassa virus (LASV), the cause of Lassa fever (LF), is endemic in Guinea. Although the detection of acute LF cases is rising in the country, data on LASV seroprevalence at the community level remain limited. The REALISE study aims to address this gap by assessing LASV seroprevalence and associated risk factors across four sites in the Gueckedou region, with active engagement of local communities.

Methods: A 2-year longitudinal study (2021-2023) involved 500 participants from three rural and one urban sites, which were selected based on previous laboratory surveillance data from the region. Community engagement began six months prior to sampling. Blood samples and questionnaires were collected at study start (T0), 12 months (T2), 18 months (T3), and 24 months (T4). Serological tests (PANADEA Diagnostics) for immunoglobulin G (IgG) and M (IgM) against LASV nucleoprotein (NP) were performed. IgM-positivity indicated recent infection, and real-time RT-PCR (altona Diagnostics) was done on these samples.

Results: Of the 500 participants enrolled at T0, 13% were lost to follow-up at T4. At T0, anti-NP IgG prevalence was of 83.4% in rural areas in contrast to 63.2% in urban areas. At T4, anti-NP IgG increased in both rural and urban areas to 88.5% and 64.9%, respectively. Anti-NP IgM ranged from 0.3% to 1.7% across all sites and follow up time points. All RT-PCR tests on IgM positive samples were negative, and no participant reported illness. Analyses are currently ongoing to explore LF risk factors.

Conclusion: Participants from rural areas exhibit the highest LASV seroprevalence rates as compared to those from urban areas, likely due to rodent reservoirs presence. Seroconversions indicate ongoing exposure and highlight the need for further research on LF. Our findings promote community-centered research and support the global Lassa vaccine strategy

Keywords: *Seroprevalence, Lassa fever, risk factors, Guinea, community engagement*

Abstract ID: ELIC2025386
Poster 048

Strengthening Public Health Intervention through Public Health Intelligence in Nigeria, 2022 to 2024

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Background: Public Health Intelligence (PHI) is increasingly recognized as vital in modern healthcare systems, offering evidence-based insights for proactive and efficient responses to health emergencies. At the Nigeria Centre for Disease Control and Prevention, the Incident Coordination Centre (ICC) serves as the National hub for emergency coordination, where PHI integrates data from multiple event-based platforms such as SITAware, Epidemic Intelligence from Open Source (EIOS), Tataafo, and community surveillance systems. This study assesses the effectiveness of PHI in detecting and responding to disease outbreaks in Nigeria, identify system strengths and gaps, and provide recommendations to enhance public health response capacities.

Methods: A cross-sectional descriptive analysis was conducted using reports from PHI activities at the ICC between 2022 and 2024.

Results: From 2022 to 2024 Nigeria's PHI system detected 1205 health signals through digital and community-based surveillance. SITAware contributed the largest share (877 signals; 72.8%), followed by media/community reports and third-party alerts (141 signals; 11.7%), EIOS (45; 3.7%), Tataafo (14; 1.2%), and other event-based inputs (128; 10.6%). Out of these signals picked across the years (2022-2024), 39 (3.2%) cases prompted preliminary and dynamic risk assessment which led to 26 (66.7%) EOC activation. This information prompted early detection, deployment of resources, and timely containment of potential outbreaks. The PHI system proved crucial in detecting early warning signs, guiding risk evaluation, and supporting evidence-driven interventions.

Conclusion: Between 2022 and 2024, Nigeria's PHI system significantly enhanced early detection, responses to health emergencies and mitigation of potential public health threats. Through the integration of diverse data sources and structured assessments, PHI facilitated timely emergency responses and resource deployment. To maintain and build on this progress, there is a need for sustained investment in data integration, platform interoperability, and capacity building. Strengthening PHI remains essential for advancing National and Regional health security in West Africa.

Keywords: *Public Health Intelligence, Public Health, Early Detection, Incident Coordination Center*

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Poster 049

Piloting the Lassa Fever Clinical Management Fellowship (LFCMF) to Support Care and Treatment for Lassa Fever in Nigeria: A Descriptive Study of the Training.

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Introduction: Lassa Fever (LF) remains a persistent public health challenge in West Africa including Nigeria. As a viral hemorrhagic fever with a high transmission risk in clinical settings, LF endangers the general population and healthcare workers as the frontline workers in outbreak response. To strengthen national capacity for clinical management of LF, the Lassa Fever Clinical Management Fellowship (LFCMF) was piloted at Irrua Specialist Teaching Hospital, Edo state, one of the most affected states in Nigeria. This study presents the implementation and evaluation of the pilot of the LFCMF program in Nigeria.

Methods: 18 training modules were adapted and updated from the Nigeria Centre for Disease Control case management guidelines and delivered through a structured, harmonized curriculum. Quantitative data was collected using a semi-structured questionnaire. A process evaluation framework was employed, using pre- and post-training assessments to measure knowledge gains and participant perceptions of the training. 12 participants were purposively selected across six geo-political zones in Nigeria.

Result: At baseline, 8.3% of participants demonstrated prior knowledge of Lassa Fever, and 16.7% reported no experience in managing LF. Additionally, 75% expressed concern about managing LF. However, following the training, participants reported an improved understanding of LF Clinical Management. 75% of the participants attested that the clinical work through sessions was well coordinated, while 100% agreed that the facilitators were engaging and used relevant, context-specific examples.

Conclusion: Our findings highlight the critical role of continuous professional development in improving preparedness and response among health workers, particularly in resource-constrained settings. Strengthening frontline capacity through targeted training initiatives like the LFCMF is essential for reducing the impact of LF outbreaks and enhancing the resilience of healthcare systems in endemic regions.

Keywords: *Lassa Fever, Lassa Fever Clinical Management Fellowship, Viral Haemorrhagic Fevers, Health Care Workers, Capacity building, Outbreak response and preparedness.*

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Poster 050

Lassa Fever Trends in Nigeria (2019–2023): Insights from Secondary Surveillance Data

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Background: Lassa fever, a viral hemorrhagic zoonotic disease, has become increasingly endemic in Nigeria, with a concerning shift from seasonal to year-round transmission. This study analysed national Lassa fever trends from 2019 to 2023, examining the magnitude and distribution of cases by person, place, and time. The findings will inform public health policy and guide interventions to mitigate the impact of Lassa fever in Nigeria which shares borders with Benin Republic, Niger, Chad and Cameroon.

Methods: A secondary analysis was conducted using laboratory-confirmed Lassa fever line list data from the Nigeria Centre for Disease Control and Prevention's Lassa Fever Technical Working Group. Frequencies and proportions were used to summarise demographics and test outcomes for data from 2019 to 2023. A confirmed case was defined as a suspected case that was positive by reverse transcriptase polymerase chain reaction (RT-PCR) using blood samples.

Results: Between 2019 and 2023, a total of 33,815 suspected Lassa fever cases were reported with 4,757 (14.1%) confirmed, with an average annual incidence rate of 4.1 cases per 1,000,000 population. Most confirmed cases occurred in individuals aged 21 – 30 (26.9%), with slight male preponderance (53.8%). Cases spanned 95% of Nigerian states (n=37), including 94% of international border states (n=16) and 88% coastal states (n=8). Ondo and Edo States alone accounted for 66% (3,136) of all confirmed cases, highlighting persistent hotspots. Temporal analysis revealed continuous, year-round transmission, with seasonal peaks consistently observed between epidemiological weeks 3 and 10.

Conclusion: The study highlights the widespread and sustained transmission of Lassa fever in Nigeria, with a significant burden in Ondo and Edo states. The unrelenting year-round transmission underscores the need for sustained public health interventions. To mitigate the impact of Lassa fever, we recommend enhanced surveillance, targeted Interventions, cross-border collaboration and public awareness.

Keywords: *Epidemiology, Public health surveillance, zoonoses, Lassa fever, Nigeria*

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Poster 051

Standardization of Death Rate: Implications for Variability in Mortality and Age-Distribution of Lassa fever in Ondo State, Nigeria.

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Introduction: Lassa fever (LF) remains a significant public health challenge in endemic areas in West Africa, including Nigeria due to its high fatalities and outbreak overwhelming the health system. Annual outbreak of LF has been reported in Ondo State. We applied direct standardization and mortality table to gain insights into Lassa fever severity in Ondo State.

Methods: We conducted a retrospective review of disease surveillance data and mortality registers from 2019 – 2024. The age, outcome and other variables were extracted and WHO World Standard Population (2000-2025) were adopted. We employed Poisson distribution parameter (x^2/v) to generate conservative estimates of variance of the death rate and mortality table to determine life expectancy.

Results: During the six-year review period, there were 2,122 LF laboratory confirmed cases and 339 deaths (CFR: 15.9%), 41 cases among health care workers with 9 deaths. The Local Government Areas with the highest age-standardized incidence, mortality and CFR were Owo (343.8 cases/100,000); (61.5 deaths/100,000) and Akoko South West (36.0%) respectively. The level of uncertainty range around the parameter (x^2/v) was computed as (4.98 - 12.64) with mortality estimates of 8.80.
The mortality rate of Lassa fever is growing exponentially at the rate of -1.98% across all ages. The adult mortality age-specific growth rate peaked at 25 - 29 and 60 - 64 years and is expected to double in the year 2030 if the current growth rate persists. The life expectancy at birth, 45.9years (ℓ_x= 9.19), and a person aged 15 years has 61.5% chances of dying of LF before his 60th birthday.

Conclusion: We found an unusual increase in the confirmed cases and significant variation in deaths among the age groups, with related reduction in life expectancy. Hence, enhanced surveillance and early medical countermeasures can be used to minimize the mortality rates from LF outbreak

Keywords: Lassa fever, Mortality, Rate, Age group, Standardization

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Poster 052

Improving Infection Prevention and Control during a Lassa fever outbreak: Experience from a Military Hospital in Nigeria

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Background: Lassa fever remains a serious public health threat in Nigeria, with annual outbreaks affecting healthcare workers due to inadequate Infection Prevention and Control (IPC) measures. As of March 2024, the country had reported 806 confirmed cases and 150 deaths, including 32 infections among healthcare workers. An outbreak at a Nigerian military hospital resulted in four deaths, three of whom were healthcare workers. In response, a multidisciplinary emergency team from the Irrua Specialist Teaching Hospital (ISTH) was deployed to assess IPC facilities and support clinical case management.

Method: The ISTH team conducted targeted intervention from 27th February to 29th March 2024. IPC facilities and practices within the isolation ward were assessed using a checklist adapted from the World Health Organization's 2017 IPC Assessment Framework. Structural modifications were undertaken to reduce transmission risks and facilitate effective barrier nursing. Confirmed cases were isolated and treated in the improved ward. In addition, comprehensive training sessions were provided to staff, focusing on Lassa fever transmission, hand hygiene, appropriate use of personal protective equipment, environmental disinfection, waste disposal and chlorine preparation.

Result: Initial assessment revealed that the isolation ward scored 39.0%, indicating major gaps in IPC implementation. Following the intervention, key improvements included the demarcation of clean and contaminated zones, establishment of donning and doffing areas, and installation of hand hygiene stations at strategic points. The post-intervention IPC score improved to 73.5%. Three confirmed cases were admitted, treated with intravenous ribavirin and supportive care, and subsequently discharged without further deaths. Despite challenges such as staff shortages and limited resources, no additional health worker infections occurred.

Conclusion: The IPC and clinical response implemented by ISTH effectively curbed the Lassa fever outbreak at the Military hospital. Sustained investment in IPC infrastructure and personnel training is essential in strengthening preparedness and ensuring effective responses to future outbreaks.

Keywords: Lassa fever, Infection Prevention and Control, Outbreak, Healthcare Worker

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Poster 053

Exploring the response capacity and preparedness of healthcare facilities in Nigeria to Lassa Fever Outbreak

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Introduction: Since the 2021 Lassa fever (LF) outbreak in Nigeria, the country has experienced a consecutive increase in the number of new cases, and despite interventions from non-governmental organisations, financial and logistical barriers persist. This study explored the response capacity and preparedness of the two major LF hotspot healthcare centres in Nigeria during LF outbreaks, Irrua Specialist Teaching Hospital (ISTH) in Edo State and Federal Medical Centre (FMC) Owo in Ondo State.

Method: A qualitative method was used. This involved the conduct of semi-structured interviews for 10 participants who are directly involved in the response to LF outbreak from FMC Owo and ISTH. The participants were four doctors, two medical lab scientists, two nurses, and two public health professionals. Thematic analysis was used to analyse the transcripts.

Results: Three major themes were identified; active systems, current interventions, and connectivity with the community. Healthcare facilities are provided with active systems for LF diagnosis and management, such as wards, medications, and molecular laboratories. They are strained during outbreaks due to large influx of infected patients, delays in supplies, and shortage of healthcare professionals. A prominent ongoing intervention is the provision of free healthcare, but it is limited to FMC Owo. Other healthcare facilities charge out of pocket, which is not affordable for community dwellers in the rural areas, invariably increasing the spread of LF. Also, free LF screening is conducted by healthcare facilities, but challenges persist in inefficient sample collection and prompt diagnosis due to the large volume of suspected cases during outbreaks.

Conclusion: Healthcare facilities connect with communities by organising town hall meetings to correct the perceptions about LF because it is viewed as "induced death sentence." A wellness team was also created to curb practices that increase the spread of LF. Continuous capacity building and stronger partnerships are recommended.

Keywords: *Lassa fever, Healthcare facilities**, **Preparedness**, **Response capacity**, **Qualitative research**, **Outbreak management**, **Community engagement.*

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Poster 054

Modelling the effect of ribavirin on Lassa fever transmission dynamics in Nigeria

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Introduction: Lassa fever is a viral hemorrhagic illness endemic to West Africa, with Nigeria reporting frequent outbreaks. The disease is transmitted via multiple routes, including human-to-human, rodent-to-human, and environmental exposure. Existing interventions face limitations due to delayed detection, weak health systems, and insufficient modeling of the disease's complex transmission pathways. This study aims to evaluate the role of ribavirin through a predictive epidemiological model to inform data-driven response strategies.

Methods: A deterministic compartmental model was constructed to simulate transmission among humans, rodents, and the environment. The model includes compartments for susceptible, exposed, infectious, and recovered individuals, and integrates human-to-human, human-to-rodent, and environmental interactions. Parameters were estimated using least-squares fitting against Nigeria Centre for Disease Control (NCDC) Lassa fever case data. Sensitivity analysis and numerical simulations were conducted to project future outbreaks and quantify the impact of ribavirin. The model showed a good fit to NCDC-reported incidence data, capturing the observed trend in reported cases.

Results: Simulations suggest that ribavirin alone has moderate impact; however, when combined with optimized control measures such as early case detection and reduced human-rodent contact, a significant decline in total infections was observed. The integrated approach led to faster epidemic decline and reduced peak infection levels.

Conclusion: The study demonstrates that ribavirin, when used alongside broader interventions, can effectively reduce the transmission and burden of Lassa fever. These findings support incorporating predictive modeling into Nigeria's early warning systems and treatment protocols. Policymakers should prioritize integrated interventions for more robust outbreak preparedness and control.

Keywords: *Lassa Fever, Nigeria, Transmission, Ribavirin, Modelling, Interventions, Outbreak Preparedness*

Uncovering Hidden Outbreaks: What Syndromic Surveillance Revealed About Arboviruses and Respiratory Illness in The Gambia

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Introduction: The emergence of H1N1 (Swine flu) virus in 2009 and severe acute respiratory syndrome coronavirus 2 (SARS-CoV2) in 2019 demonstrated the need for effective surveillance for early detection of epidemic diseases. Through the Syndromic Sentinel Surveillance System (4S) for arboviruses and respiratory infections, we analyzed epidemiological data for arbovirus and respiratory infection surveillance to inform public health decisions.

Methods: Two sentinel surveillance sites; one rural and the other semi-urban, were identified based on epidemiological profile. Case definition were developed as; Severe Acute Respiratory Infection (SARI): "any person with acute onset of fever and cough". Arboviruses; "Any person with fever and at least two of these signs: headaches, myalgia, arthralgia, rashes, retro-orbital pain, or hemorrhagic manifestation". Nasopharyngeal samples were collected from SARI suspects and Blood for arboviruses. Both arbovirus and respiratory samples were tested using RT-PCR. Positive arbovirus samples were sent to a regional reference laboratory for confirmatory testing. Data collected through the Teranga platform were analyzed using Epi Info. The 7-1-7 approach was used to assess timeliness of detection, reporting, and response.

Results: A total of 620 samples were collected with a median age of 16 years (0 - 80 years). Of these, 33% (206/620) were respiratory. A total of 34 samples tested positive: 28 respiratory viruses; [39% (11/28) SARS-CoV2, 36% (10/28) Flu A, 21% (6/28) RSV] and 6 arboviruses [67% (4/6) Yellow Fever and 16% (1/6) for Chikungunya and Dengue respectively]. One patient was co-infected with Dengue, Yellow Fever, and Malaria. Timeliness indicators showed that 35% of confirmed cases were detected within 7 days, 98% were reported immediately, and 53% received response within 7 days.

Conclusion: The 4S has revealed the presence of epidemic-prone arboviruses and other respiratory viruses in The Gambia. Therefore, the Epidemiology and Disease Control Program should strengthen the 4S to ensure rapid detection and enhance response mechanisms.

Keywords: *Arboviruses, Respiratory Viruses, Sentinel Surveillance, Outbreak Detection, The Gambia*

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Poster 056

Lassa Fever Infections Among Healthcare Workers in Nigeria: Exposure, Delayed Care-Seeking, and IPC Gaps

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Introduction: Nigeria faces a critical health workforce shortage, with only 1.83 skilled workers per 1,000 people, well below the WHO-recommended 4.5. Healthcare workers (HCWs) are at increased risk of Lassa fever infection, yet the drivers of nosocomial transmission remain poorly understood. HCW deaths continue to occur during outbreak seasons, highlighting the urgent need to strengthen infection prevention and control (IPC). Understanding exposure patterns and care-seeking behaviour is essential to optimizing IPC strategies and protecting the health system's frontline.

Methods: This is a descriptive cross-sectional study using data from healthcare workers (HCWs) infected with Lassa fever in 2023 and 2024. The Infection Prevention and Control (IPC) pillar of the National Lassa Fever Technical Working Group routinely investigates RT-PCR-confirmed Lassa fever cases among HCWs using standardized case investigation forms.

Results: A total of 60 PCR-confirmed HCW infections were investigated. Most occurred in outpatient units, accounting for 94.5%, while isolation and theatre units contributed 3.7% and 1.9%, respectively. The majority were aged 31–40 years (40.0%), with females comprising 60.0% and males 40.0%. Infections were mostly reported from tertiary facilities (70.0%), followed by PHCs (15.0%) and secondary/general hospitals (11.7%). Public facilities accounted for 78.3% of cases; private, 21.7%. Only 41.7% had IPC programmes; 51% did not use appropriate PPE during patient care, and 53.3% had no IPC training. Most HCWs (84%) could not identify their exposure source. Of the 16 (26.7%) that could, the mean interval from exposure to medical attention was 15 days; from exposure to symptom onset, 8 days; and from symptom onset to care, 6 days. Over one-third of HCWs delayed care by more than three days after symptom onset.

Conclusions: Active monitoring, strengthened IPC, regular training, and early intervention are urgently needed to reduce infection risk and protect HCWs in high-burden outpatient settings.

Keywords: *Healthcare Workers (HCW), Infection Prevention and Control (IPC), Reverse Transcription Polymerase Chain Reaction (RT-PCR), Primary Health Care (PHC), Personal Protective Equipment (PPE).*

Epidemiology of Yellow Fever in Nigeria: Analysis of Climatic, Ecological, Socio-Demographic, and Clinical Factors Associated with Viral Positivity Among Suspected Cases Using National Surveillance Data, 2017-2023.

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Background: Since its resurgence in 2017, Yellow fever outbreaks have continued to occur in Nigeria despite routine immunization and implementation of several reactive mass vaccinations. Nigeria, Africa's most populous endemic country, is considered a high-priority country for implementing the WHO EYE strategy.

Methods: This retrospective analysis described the epidemiological profile and factors associated with YFV positivity in Nigeria. We conducted multivariable binary logistic regression to identify factors associated with YFV positivity.

Results: Of 16777 suspected cases, 8532(50.9%) had laboratory confirmation with overall positivity of 6.9% (585). Predictors of YFV positivity were the Jos Plateau (aOR: 6.12, 95% CI: 4.33-8.71), Derived/Guinea Savanah (aOR: 3.46, 95% CI: 2.58-4.70), and Freshwater/Lowland rainforest ecological zones (aOR: 2.11, 95% CI: 1.54-2.92); dry season (aOR: 1.37, 95% CI: 1.02-1.86); the hot dry or humid (aOR: 3.26, 95% CI: 2.37, 5.03); the 2019 (aOR: 3.85, 95% CI: 2.46, 6.27), 2020 (aOR: 2.90, 95% CI: 1.87-4.70), 2021 (aOR: 3.42, 95% CI: 2.04-5.90), 2022 (aOR: 1.88, 95% CI: 1.01-3.51), and 2023 (aOR: 2.56, 95% CI: 1.35-4.85) epidemic years compared to compared to 2017; third (aOR: 3.08, 95% CI: 2.16-4.49) and fourth (aOR: 5.19, 95% CI: 3.48, 7.86) quarters compared to the second; male sex (aOR: 1.49, 95% CI: 1.24-1.80); age group >= 15 years ((aOR: 1.40, 95% CI: 1.11-1.78) compared to <15 years; working in outdoor ((aOR: 1.46, 95% CI: 1.08-1.99); having travel history (aOR: 1.73, 95% CI: 1.04-2.81); being of unknown vaccination status (aOR: 1.34, 95% CI: 1.02-1.78) compared to being vaccinated; and vomiting (aOR: 1.77, 95% CI: 1.19, 2.60).

Conclusion: Ecological, climatic, and socio-demographic characteristics are drivers of YF outbreaks in Nigeria, and public health interventions need to target these factors to halt local epidemics and reduce the risk of international spread. Inadequate vaccination coverage alone may not account for the recurrent outbreaks of YF in Nigeria.

Keywords: Yellow fever, epidemiology, viral positivity, factors, Nigeria

Dengue Outbreak Investigation in Mfandena I Heath Area, Yaounde, Cameroon, January 2025: Uncovering Hidden Cases and Surveillance Gaps

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Introduction: In December 2024, a sudden increase of dengue cases was reported in Mfandena I health area, Yaounde, Cameroon. Two confirmed cases that escaped routine surveillance were notified with limited available data. A multidisciplinary team was deployed to research more cases, detect vectors and breeding sites and evaluate the surveillance system.

Methods: We conducted a descriptive study from January 7-12, 2025 in Mfandena I. Cases were identified through healthcare records and community screening. Suspected cases were people living in Mfandena I with fever >38.5°C lasting 2-7 days and at least two of the following symptoms: headache, retro-orbital pain, myalgia, arthralgia, skin rash, hemorrhagic manifestations, leucopenia since November 2024. IgM ELISA and NS1 tests were performed on consenting suspected cases. Vector search was conducted within a 1.5 km radius around case residences. We assessed surveillance system in 22 local hospitals.

Results: We identified 44 suspected cases and tested 12 samples, all negative. The two confirmed cases were 54 and 59 years old male expatriates, residing in Cameroon and France, respectively. Both had fever and rash-like red spots, and consulted the same hospitals without being notified. We identified some larval breeding sites. Among 502 mosquitoes collected, 25.1% (126/502) were *Aedes albopictus*, 3.4% (17/502) *Aedes aegypti*, and 71.5% (359/502) other species. The surveillance system was neither simple, acceptable nor stable. Only 16% (4/25) of staff knew the case definition, no site had notification forms and no cases had ever been reported.

Conclusion: This investigation highlighted risk of dengue spread in Mfandena I and danger of an insidious evolution of the disease due to underreporting and limited awareness. Strengthening surveillance system, training health workers and educating communities on vector control can limit the spread of the disease.

Keyword: *Dengue, outbreak, surveillance, Cameroon*

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Poster 059

Mathematical Modelling to Forecast the Optimization of Rapid Point-of-Care Diagnostic Tests for Lassa Fever in Nigeria

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Introduction: Lassa fever (LF) is an acute viral haemorrhagic fever caused by Lassa virus. The first case of Lassa fever in Nigeria was discovered in Borno State in 1969. The seroprevalence in Nigeria is about 21%. Lassa fever can present nonspecific symptoms, so laboratory diagnosis is important. Mathematical models provide valuable insights into the dynamics of Lassa fever transmission and the impact of various interventions. The study aimed to develop a mathematical model to forecast the optimization of Rapid Point of Care Diagnostic Test (RPOCDT) tests for Lassa fever.

Methods: A cross-sectional analytical study using a novel deterministic compartmental mathematical model, Susceptible, Exposed, Infectious, and Recovered individuals (SEIR), slightly modified to include the outcomes of Rapid Point of Care Diagnostic Test, was used to represent the population dynamics of Lassa fever transmission in Nigeria. The novel compartmental model was parameterized using real-life and literature-driven data. The parameterized model was simulated using the R programming language, and an individual-based model was integrated to simulate test performance under various conditions.

Results: The model simulations showed that the Susceptible Population decreases slowly, while the Exposed Population shows a sharp peak early in the dynamics, followed by a rapid decline. RDT Positive Population shows a rapid increase, peaking before declining sharply, while RDT Negative Population shows a rapid increase, then a sharp decline. The Infectious Population shows a steady increase over time. The Uninfectious Population shows an initial rapid increase before stabilizing while Recovered Population rose consistently.

Conclusion: Higher testing rates (α) and Predictive value positive, PVP (φ), represent more effective diagnostic testing, leading to a higher number of detected cases early, which gradually decline as the population becomes immune. Deployment of RPOCDT with a high PVP is recommended.

Keywords: *Compartmental model, SEIR, Rapid Point of Care Diagnostic Test (RDT), Lassa fever, and Nigeria*

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Poster 060

Disease severity and outcome of Lassa virus disease among Nigerian children with Sickle Cell Anaemia, an observational study.

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Introduction: The relationship between sickle cell anaemia (SCA) and Lassa virus diseases (LVD) has not been characterized though both are notable for disease heterogeneity. Given that SCA is the commonest chronic hematologic disorder in tropical Africa and LVD is prevalent in West Africa, we thought it important to raise awareness on the potential for SCA-LVD interaction. We report the severity and outcome of LVD in a cohort of 10 children with SCA.

Methods: We report the findings from a retrospective observational study of 10 children with SCA and LVD seen between 01/01/2022 and 12/05/2025 at Irrua Specialist Teaching Hospital, Nigeria.

Results: 7 (70%) of the 10 children presented with indices of severe LVD (AKI stage III 4, bleeding 4, shock 6, and encephalopathy 6) and 8 (80%) with severe SCA (acute chest syndrome 3, thrombocytosis 6 and leukocytosis 7). All 7 children with severe LVD also had at least one SCA severity criterion. Mean duration of symptom-onset to admission was 5.8 days (range 2-14 days). Case fatality rate was 5/10 (50%) in LVD/SCA and 10/237 (4.2%) among all the children admitted with LVD (OR (95% CI) = 23.7 (5.89, 95.31), p <0.001).

Conclusion: SCA is associated with increased severity and poor outcome of PLVD. Pending the conduct of larger, prospective studies to validate these findings, we recommend that children with LVD should be screened for SCA and that those with LVD/SCA should be considered for intensive care.

Keywords: Children; Disease severity; Lassa virus disease; Outcomes; Sickle cell anaemia.

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Poster 061

Strengthening National and Regional Surveillance Systems: Enhancing Disease Tracking Capabilities Across Africa

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Introduction: The increasing burden of infectious diseases and emerging global health threats necessitate robust, scalable, and adaptive disease surveillance systems. Supported by the African Society for Laboratory Medicine (ASLM), this study highlights strategic approaches to strengthening national and regional disease surveillance frameworks within Africa's health landscape.

Methods: A review of regional initiatives, country case studies, and peer-reviewed literature was performed to evaluate challenges, innovations, capacity-building efforts, and policy frameworks. Focus areas included integrated surveillance systems, syndromic surveillance, digital health tools such as artificial intelligence (AI), geographic information systems (GIS), Internet of Things (IoT), and collaborative networks.

Results: Findings indicate that combining traditional surveillance with digital innovations—AI-driven analytics, telemonitoring, and 5G-enabled data sharing—significantly enhances real-time disease tracking and epidemic intelligence. Intersectoral collaboration through the One Health approach, field epidemiology training, and regional networks like EAIDSNet has strengthened cross-border coordination. Persistent challenges include data silos, infrastructural gaps, and inconsistent policy adoption.

Conclusion: Sustained investment, technological integration, and cross-border cooperation are essential to strengthen surveillance systems in Africa. ASLM's model exemplifies a practical pathway toward resilient public health systems capable of early detection, efficient response, and sustained preparedness against emerging disease threats.

Keywords: *Surveillance systems, disease tracking, Africa, digital health, public health infrastructure, ASLM, One Health, outbreak response*

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Poster 062

Cas clinique de fièvre de Lassa chez un biologiste en Guinée : diagnostic et prise en charge en zone endémique

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Introduction : La fièvre de Lassa est une maladie virale endémique en Afrique de l'Ouest, transmise par contact avec les sécrétions ou fluides corporels, notamment ceux des rongeurs du genre *Mastomys*. Nous rapportons un cas de fièvre de Lassa chez un professionnel de santé, compliqué d'une détresse respiratoire aiguë et d'une bradycardie.

Présentation du cas : Le patient, âgé de 45 ans, biologiste à l'hôpital préfectoral de Guéckédou (Guinée), a été exposé aux vomissures d'un cas probable de Lassa lors d'un voyage le 13/05/2025. Les premiers symptômes sont apparus le 16/05/2025 : fièvre, céphalées, courbatures, dyspnée et palpitations. Il a été isolé et confirmé positif à la fièvre de Lassa par RT-PCR au centre de traitement de Guéckédou le 18/05/2025. Il a ensuite été transféré au centre de traitement spécialisé de Nongo (Conakry), à 674 km, le 26/05/2025. À l'admission, il présentait une détresse respiratoire, des râles crépitants bilatéraux, une bradycardie (43 bpm), des hoquets et une dyspnée. Ses antécédents comprenaient une gastrite chronique, une drépanocytose hétérozygote et des épisodes de paludisme. Les examens ont révélé une créatininémie élevée (125,52 µmol/l), une SpO_2 à 91 %, une fréquence respiratoire de 28 cpm et une hémoglobine à 12,8 g/dl. Il a reçu une oxygénothérapie, une antibiothérapie (ceftriaxone), un traitement symptomatique et de la ribavirine selon le protocole national. Son état s'est amélioré 10 jours après l'isolement.

Conclusion : Ce cas illustre une forme atypique et grave de fièvre de Lassa, soulignant l'importance d'une vigilance renforcée dans les zones endémiques comme la Guinée.

Mot clés : *Fièvre, Lassa, Diagnostic, Endémie et Guinée.*

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Poster 063

A Comprehensive Phylogenomic Study of Lassa Virus Evolution leveraging novel computational approaches.

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BACKGROUND: Lassa fever (LF), an endemic viral hemorrhagic fever in West Africa, presents a significant public health burden. Understanding Lassa virus (LASV) evolution, particularly at the intrahost level, is crucial for addressing challenges related to disease severity and viral persistence. Our project addresses these gaps by developing and applying novel computational infrastructure and a new hybridization capture-based sequencing library for advanced LASV genomic analysis, especially for samples with low viral loads.

METHODS: We will analyze LASV-positive diagnostic samples from the Irrua Specialist Teaching Hospital (ISTH), Nigeria (2018-2022), with associated metadata. To acquire data across the full spectrum of viral loads, we will utilize both metagenomic sequencing and further develop our hybridization capture-based protocol. Deep sequencing will be performed on samples from different bodily fluids at multiple time points. Our analysis will focus on characterizing the genetic composition and intrahost evolution of LASV. These diverse sequencing data are processed within our publicly available computational workflow, viralgenie, a novel bioinformatics pipeline designed to overcome limitations of standard viral sequencing analyses.

RESULTS: This study will deliver a detailed characterization of LASV intrahost populations' genetic makeup and evolution. We expect to gain insights into how selection pressures, including immune escape, shape LASV evolution within different patient groups and bodily fluids. Preliminary work on sequencing approaches for diverse viral loads is ongoing to support these detailed intrahost analyses.

CONCLUSION: In conclusion, by combining our enhanced sequencing efforts, including the optimized hybridization capture protocol, with our novel computational approaches and large available patient metadata, we anticipate obtaining an unprecedented comprehensive LASV genomic dataset. This will facilitate insights into Lassa adaptation, immune evasion mechanisms, and their contribution to infection outcome and persistence.

Keywords: *intrahost evolution, nf-core/viralmetagenome, viral persistence, hybridisation capture sequencing, phylogenomics*

Abstract ID: ELIC202556
Poster 064

Spatial Analysis and Time-Series Modelling of Lassa Fever Cases in Nigeria: Insights from 2018-2023 Lassa Fever National Surveillance Data

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Background: Lassa fever (LF) is a viral hemorrhagic fever endemic in Nigeria characterized by high morbidity and mortality rates. Despite significant efforts at reducing the burden of LF in Nigeria, it remains a public health concern with negative socio-economic and health impacts. Modeling and predicting LF outbreaks are crucial to ensure timely-targeted interventions. We therefore analyzed data to describe the recent five-year trend of LF, identify patterns, and made predictions.

Methods: We reviewed the LF historical surveillance data from the National Surveillance Database (Surveillance Outbreak Response Management and Analysis System – SORMAS) from January 2018 to December 2023. We summarized data using frequencies and percentages. We used a Multiplicative Time-series model to determine the trend and pattern of the Lassa fever cases. We then predicted cases for 2024 and 2025 by de-seasonalizing the observed cases using a seasonal variation index (SVI) adjustment mechanism. We employed R and QGIS (v.3.32.2) for spatial analysis.

Results: Two of the 36 states in Nigeria—Ondo and Edo—accounted for 65% of the total confirmed cases and 53% of total mortality in the country. The Lassa fever cases followed a downward trend ($\beta=0.1777$, $R^2=0.0018$) from 2018 to 2023. Time-series analysis shows peak periods in the first quarter (January–March) accounting for 65% of the total cases and deaths yearly. The SVI was highest in quarter 1 (2.1637), and least in quarter 4 (0.3249). The projected confirmed cases for 2024 and 2025 were 453 and 392, respectively, with peaks in the first quarter.

Conclusion: A downward trajectory in confirmed cases of Lassa fever was observed in Nigeria. However, peak periods are expected in the first quarter of the year. Lassa fever burden was predominant in two states. Focusing on community-driven preventive interventions before the peak periods and in the hot spot areas will facilitate Lassa fever control in Nigeria.

Keywords: *Lassa Fever, Outbreaks, Time-series Analysis, Nigeria*

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Poster 065

Lassa fever in pregnancy with a favourable maternal and fetal outcome: A case report

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Introduction: Lassa fever is a frequently fatal viral hemorrhagic disease caused by the Lassa virus, and endemic in West Africa. Lassa fever in pregnancy is associated with significantly higher maternal mortality and unfavourable fetal outcomes especially in the late trimester.

Method: The study design is a case report highlighting a 32 year old $G_2P_1^{+0}$(1Alive), known asthmatic woman, who presented at 34 week + 3 days gestational age with a 5 day history of high grade fever, breast engorgement, and intermittent abdominal pain. She tested positive for Lassa by RT-PCR with CT values of 32.75 and 30.0 on the G and L genes. She had spontaneous vaginal delivery of a live female neonate at a gestational age of 35 weeks + 3 days. The neonate tested positive for Lassa fever (CT- 27.49, 34.12), and was co-managed with the paediatricians as Lassa fever in a preterm, low birth weight neonate with jaundice, sepsis and anaemia. Baby tested negative for Lassa virus and were both discharged and follow-up at the clinic.

Results: This case depicts the successful management of a neonate with vertically acquired Lassa fever. The high viral load (CT value 27, 34) of the neonate was consistent with acute infection. Hyperbilirubinemia in this case was likely multifactorial driven by prematurity, neonatal sepsis, and possible hemolysis from viral infection.[13,14] Phototherapy proved effective, avoiding exchange blood transfusion, this reflects the importance of individualized care based on evolving clinical parameters. This case adds to the limited but growing body of evidence that suggests timely diagnosis and aggressive antiviral and supportive therapy can significantly improve neonatal outcomes.

Conclusion: The successful management of both patients demonstrates the attainability of favourable outcomes in maternal and neonatal Lassa fever with early diagnosis and presentation of patients, timely ribavirin therapy-though extended dosing requires further study, and multidisciplinary care.

Keywords: *Lassa fever; Pregnancy; Favourable; Maternal outcome; Fetal outcome*

Comparative analysis of human-to-human transmission in two different population settings (community and healthcare): A Mathematical Modelling Approach

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Introduction: Lassa fever (LF) is a viral infectious disease with various symptoms, resulting from an infection of the Lassa virus. It is a disease of significance in public health because it can be transmitted from person to person, often with high fatality rates in healthcare and community setting.

Methods: This study applies a mathematical modelling approach using a Susceptible-Exposed-Infectious-Recovered (SEIR) model to compare LF transmission dynamics in community and healthcare settings. Incidence data obtained from the Nigeria Centre for Disease Control (NCDC) and parameters from published literature were used to estimate model inputs.

Results: The values of R0 indicated increased transmission in the healthcare settings than in the community at 1.9991 and 1.9822, respectively. This is because the infected persons are likely to have close contact with healthcare providers most of the time. Sensitivity analysis showed that a decrease in transmission rates leads to fewer infections, promoting infection control (IPC) measures in healthcare and increasing community awareness, encouraging more testing, and supporting measures directed at controlling vector populations. The study found that although community transmission is less likely than in healthcare, it needs focused prevention measures than healthcare-acquired transmission. However, better hygiene, community involvement, coordination and collaboration of key stakeholders using the One Health approach are important strategies in preventing LF epidemics.

Conclusion: The quantitative recommendations based on the model can contribute significantly to managing Lassa fever infection across the simulated scenarios. Collaboration among stakeholders using a One Health approach is essential for effective LF prevention and control.

Keywords: *Lassa fever (LF), SEIR model, Transmission dynamics, Healthcare settings, Infection control (IPC).*

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Poster 067

Lassa fever in Northern Benin: A Family Cluster of Complicated Disease Highlighting the Need for Specialized Care

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Background: Lassa fever is an endemic viral hemorrhagic fever prevalent in West Africa, including Benin. In northern Benin, efforts to strengthen epidemic preparedness have led to the expansion of diagnostic capacity and the commissioning of a new isolation ward. Managing severe cases, particularly in pregnant women, remains highly challenging and requires specialized care.

Methods: Both patients were managed in our dedicated isolation unit with daily clinical evaluations, routine blood draws, and interdisciplinary ward rounds. Laboratory monitoring included RT PCR for Lassa virus, routine biochemical and hematological parameters in addition to clinical examinations.

Results: In March 2025, a 29-year-old woman in her first trimester of pregnancy presented to our facility after visiting three other health centers. She arrived in hypovolemic shock with massive hematemesis, severe anemia (hemoglobin 6.3 g/dL), marked thrombocytopenia (platelets 39 G/L), and leukopenia (3.6 G/L). RT PCR confirmed Lassa virus infection. She was admitted to isolation, but ribavirin treatment was delayed. On day 3 of admission, she expelled the fetus and died the following day due to retained placenta complicated by sepsis and probable disseminated intravascular coagulation (DIC). Her 44-year-old mother also tested positive for Lassa fever and presented with fever and organ dysfunction, including elevated creatinine (30 mg/L), hepatic cytolysis (ALT 180 U/L, AST 838 U/L), and anemia. With daily monitoring and supportive care, she gradually recovered as her laboratory parameters normalized. She remained viremic for 27 days before testing negative and being discharged.

Conclusion: These cases underscore the complexity of Lassa fever in its management, particularly in pregnancy and severe illness. Further efforts in Northern Benin should include early diagnostics and community outreach to achieve timely diagnosis. Close clinical monitoring and interdisciplinary care in specialized facilities are essential for improving outcomes in such cases.

Keywords: *Lassa fever, Family Cluster, Parakou*

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Poster 068

From Outbreak to Opportunity: Reflections and Recommendations from Ghana's 2023 Lassa Fever Response

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Introduction: Lassa Fever is endemic in parts of West Africa, yet Ghana had reported only sporadic cases until 2023. On February 24, 2023, a Lassa Fever outbreak was declared in Ghana after two cases were confirmed in the Greater Accra Region. Over the following eight weeks, 27 confirmed cases were recorded across five districts, with one death and 237 contacts identified. Although the outbreak was swiftly contained within one region, it exposed critical gaps in Ghana's public health response systems specifically in surveillance, laboratory diagnostics, infection prevention and control (IPC), risk communication, and coordination.

Methods: In accordance with International Health Regulations (IHR), the Ghana Health Service (GHS), with support from the World Health Organization (WHO), conducted a structured three-day After-Action Review (AAR) in November 2023. The AAR brought together national, regional, and district-level stakeholders and divided them into five technical areas: surveillance and contact tracing, case management and IPC, risk communication and community engagement, laboratory diagnostics, and coordination and resource mobilization.

Results: Key successes included timely case detection, rapid laboratory confirmation, and effective coordination, which were informed by Ghana's previous outbreak experiences with COVID-19 and Marburg virus. However, limitations such as suboptimal IPC practices, low public awareness, funding constraints, and communication gaps between institutions hindered the overall response. The AAR resulted in several recommendations: strengthening IPC training, integrating teaching hospitals into emergency response systems, improving access to emergency funding, upgrading laboratory capacity, and enhancing community engagement strategies.

Conclusion: The exercise provided actionable insights to improve Ghana's preparedness and response mechanisms for future outbreaks. Implementing these recommendations will reinforce Ghana's health security architecture and establish the country as a leader in public health emergency preparedness in West Africa.

Keywords: *AAR- After Action Review*, *IPC- Infection Prevention and Control*, *IHR-International Health Regulations 2005*, *GHS-Ghana Health Service*

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Poster 069

Facteurs associés à la fluorose dans le district sanitaire de Tessaoua, Région de Maradi au Niger, 19 au 24 novembre 2023

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Introduction : La fluorose est une maladie métabolique chronique causée par les ions fluorés. La teneur élevée en fluorure des eaux souterraines constitue la cause principale. Les fluorures sont responsables de nombreuses atteintes chroniques des dents ou des os, appelées fluorose. En 2023, des cas de déformation osseuse ont été observés chez certains enfants au Niger. Des équipes d'investigation pluridisciplinaire et multisectorielle ont permis d'identifier les causes de ces déformations osseuses et apporter des mesures de santé publique correctrices.

Méthodes : Nous avons mené une étude analytique des cas de fluorose enregistrés à Téssaoua en 2023**.** Des analyses physico-chimiques ont été effectuées sur des eaux des puits et forages. Des prélèvements biologiques et biochimiques ont été faits. Les données collectées ont été analysées à l'aide du logiciel Stata 16. Le seuil de signification fixé à 0,05 et les résultats exprimés sous forme d'OR ajustés et IC 95%. L'adéquation globale du modèle multivarié a été estimée par le test de Hosmer Lemeshow.

Résultats : L'âge moyen des enfants était de 3,9 ans ± 1,6 ans avec un minimum de 2 ans et un maximum de 10 ans. Il ressort après ajustement du modèle multivarié que la profondeur des forages (OR ajusté=8,4 ; ICà95% =1,76 – 4,01 ; p<0,001), la teneur en fluor (OR ajusté=25 ; ICà95% = 16– 41 ; p<0,001), la tranche d'âge (OR ajusté=18 ; ICà95% = 1– 31 ; p=0,043) et la provenance des enfants (OR ajusté=30 ; ICà95% = 1,7– 54,3 ; p=0,019) étaient significativement associés à la fluorose osseuse dans le modèle final.

Conclusion : La mission d'investigation des cas suspects de fluorose au niveau du district sanitaire de Téssaoua a fait apparaître des insuffisances dans la réalisation de certains ouvrages (forages et puits). La résolution de ces insuffisances éviterait à l'avenir l'apparition des cas de fluorose.

Mots clés : *Facteurs, Associés, Investigation, Fluorose, Niger*

Lassa Fever Epidemic in West Africa: Past and Current Responses

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Introduction: Lassa fever (LF), caused by the Lassa virus (LASV), remains a significant public health challenge in West Africa since its first identification in Nigeria in 1969. Countries such as Nigeria, Sierra Leone, Liberia, Guinea, Togo, and Benin Republic report several cases annually. With *case fatality rate (CFR) ranging from 17.4% in community settings to 60% during hospital-based outbreaks*, its severe complications and nosocomial infections place immense burden on healthcare systems.

Methods: This narrative review is based on peer-reviewed literature, public health reports, and organizational updates on research to examine the strategies used historically and currently to combat LF. The review focuses on the evidence of the six most affected countries and looks at the advancements in the field of epidemiology, new diagnostic methods, treatment, and vaccine development.

Result: Major findings indicate the increase of case detection and reporting, the decrease of CFR, and the development of diagnostic capacity. The clinical trials on therapeutics and vaccine candidates have been facilitated by national and international partnerships as well as investment in infrastructure.

Conclusion: The review notes that long-term interventions, in particular, surveillance, early diagnosis, treatment, and health education, are crucial to reducing the burden of LF. Cooperation within the region is key to the existing and future effort of curtailing the epidemic of LF in West Africa.

Keywords: *Lassa fever Epidemic, Surveillance, Research, Vaccine, Nigeria, West Africa*

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Poster 071

Concurrent Lassa Fever Outbreaks in Kaduna and Kano States, Nigeria: Lessons in Health Worker Safety and Emergency Response

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Introduction: Lassa fever continues to pose a public health threat in Nigeria, particularly during the dry season. In 2025, Kaduna and Kano States experienced sequential outbreaks, prompting coordinated surveillance and emergency response efforts. This abstract summarizes programmatic experiences and key lessons in outbreak detection, health worker safety, and inter-agency coordination.

Methods: We conducted a retrospective review of surveillance, laboratory, and case management data from NCDC Kaduna and WHO Kano. Kaduna's outbreak occurred from January through July (Epi Week 1–28), while Kano's was reported in April (Epi Week 15). Data included suspected and confirmed cases, contact tracing efforts, and programmatic interventions.

Results: Kaduna State recorded 54 suspected cases, 8 confirmed, and 5 deaths (CFR: 62.5%) across five LGAs, including 2 infections in healthcare workers. A total of 110 contacts were listed, with 2 confirmed positive and 4 symptomatic. Kano State reported 7 suspected cases, 2 confirmed, and 2 deaths (CFR: 28.6%) across six LGAs, with 55 contacts listed and 1 confirmed positive. No health worker infections were recorded in Kano. Both states demonstrated high follow-up rates with zero contacts lost.

Conclusion: The outbreaks underscore the importance of rapid detection, robust contact tracing, and effective communication. Kaduna's higher burden and HCW infections highlight IPC gaps, while Kano's outcomes reflect timely coordination and preventive practices. These experiences stress the need for continued investment in surveillance, emergency logistics, and inter-state collaboration.

Keywords: *Lassa fever, outbreak response, surveillance, Nigeria, health worker safety*

Abstract ID: ELIC202531
Poster 072

Emerging Trends and Associated Risk Factors Influencing Mortality and Fatality Rates of Lassa Fever in Nigeria: A Retrospective Study (2001 -2024)

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Background: Lassa fever is a highly dangerous viral hemorrhagic fever endemic to West Africa, particularly in Nigeria, Sierra Leone, Liberia, and Guinea. The mortality rate for hospitalized patients ranges from 15% to 20%, escalating to 50% during epidemics, and is exceptionally high among pregnant women, reaching 90% in those infected during their third trimester. This study seeks to generate critical insights that may significantly reduce the risk of death from Lassa fever.

Methods: Time trends for Lassa fever mortality and fatality rates were analyzed using simple linear regression. Negative binomial regression was used to examine associations between the dengue mortality and case fatality rates and socioeconomic, demographic, and healthcare indicators at the municipality level from 2001 to 2024.

Results: The case fatality rate for Lassa hemorrhagic fever in Nigeria increased from 2001 to 2024. Specifically, the rate for patients aged 0-14 years rose (β=0.48; p=0.030), as did the rate for those aged 15 years and older (β=1.1; p<0.01). Factors associated with the Lassa case fatality rate included average income per capita (MRR=0.88; p=0.038) and the number of basic health units available per population (MRR=0.98; p<0.001). Additionally, mortality rates continued to rise from 2001 to 2024 (β=0.450; p=0.002). Factors correlated with mortality included inequality (RR=1.02; p=0.001), high income per capita (MRR=0.96; p=0.005), and a higher proportion of the population living in urban areas (MRR=1.01; p<0.001).

Conclusion: The alarming increase in mortality and case fatality rates linked to Lassa fever, compounded by pressing socioeconomic and healthcare challenges, underscores the urgent need for a decisive and unified response. To effectively reduce mortality during public health crises, we must prioritize and protect our most vulnerable populations during outbreaks.

Keywords: *Lassa Fever, Mortality, Fatality Rates, Diagnostic Accuracy, Emerging Trends*

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Poster 073

Deciphering the seasonality and trend of lassa fever in Nigeria from 2019 to 2023 and mathematical modelling analysis of the impact of rapid point of care diagnostic tests: Rapid diagnosis, rapid response, rapid control

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Introduction: Lassa fever is a viral hemorrhagic disease endemic in West Africa, with significant morbidity and mortality in Nigeria. Recent advances in diagnostic technologies have led to the development of Rapid Point-of-Care Diagnostic Tests (RPOCT) for Lassa fever, offering promising opportunities for early detection and prompt treatment. This study aims to investigate the trend and seasonality of Lassa fever in Nigeria and assess the potential impact of RPOCT on controlling the disease.

Methods: We obtained monthly Lassa fever surveillance data from the Nigeria Centre for Disease Control (NCDC) for the period January 2019 to December 2023. A compartmental model, SEIR, was used to represent the population dynamics of Lassa fever transmission, and the impact of RPOCT was assessed using mathematical modeling analysis. The model was implemented in R using the deSolve package.

Results: The disease exhibited an increasing trend over the five-year period, with a distinct seasonal pattern of outbreaks occurring primarily between November and March. The study highlighted the potential benefits of RPOCT in controlling outbreaks by facilitating prompt detection and enabling rapid response and control measures.

Conclusion: The study demonstrates the potential of RPOCT to reduce the transmission of Lassa fever. Based on the findings, we recommend developing seasonal response plans, enhancing laboratory capacity particularly RPOCT, supporting state-level surveillance, and increasing public awareness to improve Nigeria's response to Lassa fever outbreaks

Keywords: *Lassa fever, Rapid Point-of-Care Diagnostic Tests (RPOCT), Seasonality, Mathematical modelling*

Abstract ID: ELIC2025474
Poster 074

Strengthening antimicrobial resistance (AMR) surveillance in the West African region: a report on the activities of the WAHO Regional Technical Working Group (TWG)

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Introduction: A regional Technical Working Group on Antimicrobial Resistance (AMR-TWG), grounded in the One Health approach, was established in 2018 following an assessment of AMR surveillance systems in West Africa. It's inaugural meeting in 2019 resulted in a regional roadmap and standardized data collection tools. These were technically validated in 2021 and formally endorsed by the ECOWAS Assembly of Health Ministers in May 2022 in Accra.

Methods: The roadmap, structured around five strategic pillars, aims to harmonize AMR surveillance approaches across ECOWAS member states and support the development of integrated national action plans. Bimonthly virtual and in-person AMR-TWG meetings were held to identify and coordinate priority interventions. Capacity-building efforts focused on key areas such as stakeholder engagement, formation of national AMR task forces, technical training for bacteriology staff, and improved data management. These activities were further strengthened through collaboration with the "West African Regional Initiative for Laboratories" led by the Institut Pasteur de Dakar.

Results: Since 2019, four in-person AMR-TWG meetings have helped define and update regional priorities. A 2022 workshop improved WHONET data entry capacity. A list of priority bacteria was validated for the region. Advocacy and technical training missions were conducted in four countries. External Quality Assessment panels are now distributed to eleven countries. Seven national reference laboratories have received bacteriology equipment through the PROALAB project. As a result, eleven countries are now enrolled into and four are submitting AMR data to the WHO GLASS platform. Eleven countries are also enrolled in InFARM and are submitting data for One Health.

Conclusion: Thanks to AMR-TWG's coordinated efforts and partnerships with WHO, Africa CDC, and the Fleming Fund, WAHO has significantly advanced AMR surveillance in the region. In 2025, support missions will be deployed to four additional countries to further expand and consolidate regional capacity.

Keywords: *Antimicrobial Resistance (AMR), One Health, Surveillance Systems, Capacity Building*

Serological Evidence of Prior Exposure in Suspected Lassa Fever Cases with Negative Real-Time Polymerase Chain Reaction (PCR) Results

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Introduction: Lassa virus, an RNA virus causing haemorrhagic fever and belonging to the *Arenaviridae* family, is prevalent in West Africa. Nigeria is highly endemic due to the primary host, *Mastomys natalensis*, residing within the human population. Though 80% of cases are asymptomatic or possess mild symptoms, in 20% of cases, the symptoms manifest gradually as the infection progresses. Presently, RT-PCR is the diagnostic gold standard in Nigeria, effectively detecting acute infection (first 3 weeks) before antibody emergence; however, viral clearance in survivors coincides with antibody emergence. This study investigated the prevalence of serological Immunoglobulin-G (IgG) biomarkers in suspected Lassa fever cases relative to PCR results, aiming to understand prior exposure.

Methods: A retrospective study was conducted on 93 archived suspected Lassa fever cases using the Real Star Altona Lassa fever RT-PCR 2.0 Assay. Subsequently, all samples underwent IgG serological testing with the Panadea LASV (NP) IgG ELISA kit, following the manufacturer's instructions. Data was analysed using non-parametric statistics, the Mann-Whitney U test at *p<0.005*.

Results: Of the 93 cases, RT-PCR confirmed 21 (22.6%) as positive and 72 (77.4%) as negative for Lassa virus RNA. IgG antibody testing revealed that 5 (7%) of the PCR-negative samples were seropositive, indicating prior Lassa virus exposure. Conversely, only 4 (19.0%) of the PCR-positive samples were IgG-positive.

Conclusion: The detection of IgG antibodies in PCR-negative cases suggests prior Lassa virus exposure, highlighting potential missed past infections when relying solely on PCR. The low IgG positivity in PCR-positive cases may indicate early infection before significant antibody development or limitations in acute-phase IgG detection. Given that approximately 80% of Lassa fever infections are mild or asymptomatic, many individuals with immunity (IgG) may remain undetected by surveillance focusing on symptomatic cases and PCR testing. These findings underscore the value of integrating serological assays with molecular methods for a more comprehensive understanding of Lassa fever exposure and to inform public health strategies in endemic regions like Nigeria.

Keywords: Real-Time Polymerase Chain Reaction (RT-PCR), Enzyme-Linked Immunosorbent Assay (ELISA), Immunoglobulin G (IgG), Lassa fever Virus (LASV), Nucleoprotein (NP).

Evaluating Cross-Border Surveillance Systems for Lassa Fever and Other Emerging Infectious Diseases in West Africa Land Border Entry Point - A Systematic Review

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Introduction: In West Africa, porous land borders and high population mobility facilitate the rapid spread of infectious diseases such as Lassa fever and COVID-19. Despite efforts under the International Health Regulations (IHR), significant gaps remain in the operationalization of cross-border surveillance systems. This study systematically reviews the state of cross-border surveillance in West Africa, focusing on land entry points, zoonotic risk, and regional coordination.

Methods: A systematic search was conducted in accordance with the PRISMA 2020 guidelines across five databases: PubMed, Scopus, Web of Science, AJOL, and Google Scholar. Keywords related to cross-border surveillance, emerging infectious diseases, and West Africa were used. Eligible studies included those conducted within ECOWAS countries or global studies that reference cross-border surveillance systems relevant to the West African context, particularly at land entry points. Focus was given to surveillance mechanisms addressing zoonotic or emerging infectious diseases. Data were extracted on surveillance system structure, operational gaps, digital tools in use, and regional or bilateral cooperation frameworks.

Results: Thirty-six studies met inclusion criteria. Major findings revealed weak diagnostic and reporting capacity at borders, poor inter-country data sharing, and limited integration of animal health surveillance. Tools like SORMAS were underutilized due to technical and institutional barriers. Socio-political resistance, low funding, and lack of harmonized protocols hindered coordination. Few bilateral agreements or real-time surveillance structures exist at border entry points.

Conclusion: Despite regional recognition of the threat posed by cross-border disease transmission, implementation of integrated surveillance systems remains limited. Strengthening bi-national agreements, harmonizing digital tools, and integrating One Health approaches are crucial for improving epidemic preparedness in West Africa. Prioritizing zoonotic surveillance and community engagement at borders can significantly enhance regional health security.

Keywords: *Cross-border surveillance, zoonotic diseases, West Africa, epidemic preparedness, One Health, SORMAS, regional coordination.*

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Poster 077

Devenir des patients confirmés de la Fièvre Lassa en Guinée : Cas des centres de traitement des épidémies.

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Introduction : Cette étude visait à décrire l'évolution clinique et les issues thérapeutiques des cas confirmés de fièvre Lassa pris en charge dans les centres de traitement des épidémies en Guinée.

Méthode : Il s'agit d'une étude descriptive rétrospective, menée du 12 février au 30 avril 2025 dans huit régions administratives de la Guinée. Les données, couvrant la période de 2021 à 2025, ont été recueillies auprès des agents de santé. Une analyse descriptive a été réalisée sur l'ensemble des cas confirmés.

Résultats : Sur 119 cas suspects pris en charge dans les centres de traitement des épidémies en Guinée, 17 ont été confirmés en laboratoire, soit un taux de positivité de 14,29 %. La majorité des cas confirmés ont été enregistrés en 2022 (47,06 %), suivis de 2021 (23,53 %), 2024 (17,65 %) et 2025 (11,76 %). Ces patients provenaient principalement de N'Zérékoré (52,94 %), Conakry (41,18 %) et Kindia (5,88 %). Une prédominance féminine a été observée (52,94 %), avec un sex-ratio F/H de 1,12. L'âge moyen était de 34,58 ans. Les agents de santé représentaient la profession la plus touchée (52,94 %), suivis des ouvriers (17,65 %) et des cultivateurs (11,76 %). Cliniquement, 94 % des cas présentaient une forme modérée à l'admission, contre 6 % de forme grave. Les signes les plus fréquents étaient l'asthénie (82,35 %), la fièvre, la dyspnée et la diarrhée (64,71 % chacun), la surdité (47,06 %), les douleurs (35,29 %) et les saignements (23,53 %). Tous les patients confirmés ont reçu un traitement à base de ribavirine (100 %). À l'issue de la prise en charge, 94 % des patients étaient guéris, tandis qu'un décès (6 %) a été enregistré.

Conclusion : La fièvre Lassa demeure une menace en Guinée, nécessitant un renforcement des mesures de prévention et de sensibilisation.

Mots clés : *Confirmés, Lassa, devenir*

Abstract ID: ELIC2025336
Poster 078

Lassa Hemorrhagic Fever and Haematologic Dysregulation: Insights from Federal Medical Center, Owo, Ondo State, Nigeria

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Introduction: Lassa hemorrhagic fever (LHF), a viral zoonotic illness endemic to West Africa, poses significant challenges to clinical diagnosis and management due to its nonspecific presentation and complex pathophysiology. Haematologic abnormalities are hallmark features that may serve as diagnostic and prognostic indicators.

Methods: A random selection of 200 confirmed cases of LHF between 2021 and 2024 (50 per year) and their haematologic parameters (WBC, HCT and PLT) analysed using microsoft Excel and Microsoft Power BI in relation to their cycle threshold (Ct) for LHF for different age groups and gender at the Federal Medical Centre, Owo, Ondo State, Nigeria.

Results: The findings reveal significant leukocytosis, anemia, and thrombocytopenia in severe cases, with strong correlations between haematologic indices and clinical outcomes. The female gender were more predisposed to the infection with 16.5% compared to their male counterparts with 14%.

Conclusion: These results highlight the importance of routine haematological assessments in endemic regions for early detection and effective disease management.

Keywords: *Lassa haemorrhagic fever (LHF), cycle threshold (Ct), White Blood Cell (WBC), Haematocrit (HCT), Platelets (PLT).*

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Poster 079

Exploring the Factors affecting the uptake of Standard Practices for Lassa Fever Prevention in Nigeria: A case study of Endemic states in West Africa

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Background: The cases of Lassa fever (LF) infection are rising and calls for a change in attitude and practice towards its prevention. This work was aimed at assessing the factors affecting the uptake of standard practices for LF prevention in Nigeria.

Method: This had two phases: observation and desk review of other related data from study communities. Situation reports (SiTrep) reports were reviewed in these communities' health facilities from Federal Ministry of Health (FMOH) and Centre for Disease Control and Prevention (CDC) from 2012 to 2022 and analyzed. Samples from 300 respondents were assessed with a male: female ratio of about 1.3:1 and a mean age of 35.01±10.721 years.

Results: Our findings showed there is high sensitization for LF and high media involvement. However, there is often late presentation of LF cases to healthcare facilities. The Healthcare workers (HCWs) do not give optimum awareness creation to the host communities (52.0%). Our findings showed that Personal Protection Equipment (PPE) use was seen as key in preventing LF amongst HCWs; however, the availability of PPE is still not enough.

Conclusion: Attitudinal change and adoption of practices that will promote the prevention of LF are therefore advocated. Such practices include: provision and effective use of PPE, early presentation of LF cases, improved LF surveillance, and continuous training of HCWs. These practices will improve the uptake of control strategies for LF.

Keywords: *Lassa fever, attitude, sensitization, infection, PPE, Endemic, Prevention*

Abstract ID: ELIC2025449
Poster 080

Unravelling the Impact of the Intersecting Epidemics of Lassa Fever, Malaria, and Arbovirus Co-Infections in Nigeria: A Review of Literature

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Introduction: Despite improved surveillance and case management practices, the case fatality rate (CFR) from Lassa fever (LF) remains high in Nigeria and other sub-Saharan African countries. Factors such as poor health-seeking behavior, denial, and stigma have been known to delay treatment initiation, thereby increasing fatality from LF. However, LF co-infection with malaria and arboviruses such as yellow fever (YF) and dengue, which are now occurring at epidemic thresholds in Nigeria, is poorly investigated. This study reviewed existing literature to determine the possible occurrence of LF, malaria, and arboviral co-infection.

Methods: The review focused on literature published between 2015 and 2025 from PubMed, Google Scholar, and Web of Science. Arksey and O'Malley's methodological approach was adopted. Papers were selected following the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) framework. We identified 70 articles and screened them down to 15 for final review.

Result: LF- malaria, LF-YF, and LF- Dengue coinfection have been reported in Nigeria. Akhuemokhan *et al*. (2017) found that 30.8% of children with Lassa virus disease (LVD) also had malaria parasitemia. Animasaun et al. (2025) reported a single Lassa virus and dengue virus co-infection in Oyo State, Nigeria. Okwuraiwe et al. (2022) reported a single YF and LF co-infection in Ondo State, Nigeria. Cadmus et al. (2025) and the LASCOPE study reported that fever and digestive symptoms such as vomiting and abdominal pain were frequent in LF cases, suggesting possible malaria and arboviral coinfections. Triple co-infections involving LF, malaria, and arboviruses have not been documented. Multi-pathogen testing of fever cases is carried out for research purposes only.

Conclusion: Co-infections involving LF, malaria, and arboviruses are not routinely investigated in Nigeria, and may be responsible for high fatality from LF. Establishing a multi-pathogen testing for fever in LF endemic countries would improve detection and management of comorbidities that may impact fatality from LF.

Keywords: *Lassa fever, Arbovirus, Co-infection, Diagnosis, Multi-pathogen testing, Case Fatality Rate*

Abstract ID: ELIC2025466
Poster 081

Strengthening Laboratory Resilience through Regional Equipment Maintenance and Metrology Systems: Lessons from West Africa

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Background: Reliable laboratory equipment and effective metrology systems are essential for accurate diagnostics and epidemic response, particularly for diseases like Lassa fever. Across West Africa, gaps in equipment maintenance, calibration, and technical capacity have undermined diagnostic sustainability. In response, West African Health Organisation (WAHO), with partners, initiated a regional strategy to address these deficiencies through stakeholder engagement, needs assessment, training, and policy development.

Methods: From 2022 to 2024, regional meetings and expert consultations brought together over 75 participants from all 15 ECOWAS countries and partners. A baseline survey involving 27 institutions across 13 countries assessed practices, challenges, and opportunities in equipment maintenance and metrology. Follow-up meetings included group work, plenary discussions, and prioritization exercises. Equipment procurement under WAHO-supported projects also incorporated expert consultation to ensure standardization, availability of spare parts, and local maintenance capacity.

Results: Key findings included widespread lack of national policies on equipment maintenance, shortage of trained biomedical engineers, and limited access to spare parts. In response:
- A Regional Technical Working Group (TWG) was established to provide ongoing technical guidance.
- Regional Centers of Excellence were identified to serve as hubs for technical support, training, and calibration services.
- An End-User Training Workshop on biosafety cabinet (BSC) maintenance was conducted in March 2024 with 14 ECOWAS countries.
- A Regional Certification Program for BSC certifiers is in development, aiming to reduce reliance on international providers and promote cost-effective, timely certification.
- PROALAB-procured equipment now includes maintenance contracts and end-user training.

Conclusion: The coordinated regional approach has laid the foundation for sustainable improvement in laboratory equipment maintenance and metrology across ECOWAS. By leveraging regional expertise, fostering standardization, and building in-country capacity, WAHO and partners are reducing fragmentation and dependency. Continued investment is essential to consolidate these gains and ensure resilient laboratory systems for future public health emergencies.

Keywords: *Laboratory systems, Equipment maintenance, Metrology, West Africa, Biosafety cabinet certification, Regional capacity building.*

Abstract ID: ELIC2025465
Poster 082

Strengthening laboratory quality management systems to support epidemic response: Progress from a regional program in West Africa

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Background: Frequent outbreaks of Lassa fever and other infectious diseases in West Africa highlight the need for resilient laboratory systems that provide accurate and timely diagnostics. Weak laboratory quality management systems (QMS) undermine surveillance and response, leading to delays in diagnosis and suboptimal outbreak control. In response, West African Health Organisation (WAHO) initiated a regional QMS strengthening program in 2018 to build sustainable capacity and improve accreditation readiness across ECOWAS countries. The objective of this study is to assess improvements in QMS implementation among regional and national reference laboratories, and to identify key success factors and persistent challenges.

Methodology: The program, implemented by WAHO in partnership with the African Society for Laboratory Medicine (ASLM), followed a six-step approach across nine countries. It began with training of SLIPTA auditors/mentors to form a regional coaching network. Baseline SLIPTA assessments were conducted to identify quality gaps, raise awareness, and engage stakeholders. Trained mentors provided on-site coaching and targeted trainings addressed commonly observed deficiencies. Annual SLIPTA audits and feedback loops enabled continuous progress monitoring. Finally, regional meetings facilitated results sharing, peer learning, and motivation among laboratory directors. Progress was measured using SLIPTA scores and accreditation status.

Results: At baseline, 95.7% (22/23) of laboratories were rated 0–2 stars, with none accredited. By 2024, 75.0% (18/24) of laboratories had progressed to 3–5 stars, with five achieving full accreditation. These improvements were driven by strong laboratory leadership, committed staff, mentorship, peer motivation, and sustained technical and financial support. Key challenges included limited staffing and high turnover, infrastructural and resource limitations, and gaps in equipment calibration services.

Conclusion: This program has led to measurable improvements in laboratory quality, enhancing epidemic preparedness and response capacities. Continued investment, national ownership, and tailored support to underperforming labs are critical to achieving equitable and sustained quality improvements across the region.

Keywords: *QMS, SLIPTA, accreditation, mentorship, epidemic preparedness.*

Abstract ID: ELIC2025340
Poster 083

Health literacy and preparedness for outbreak of Marburg Virus Disease among doctors and nurses at a reference treatment centre for viral hemorrhagic diseases in Nigeria

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Introduction: Marburg virus disease (MVD), a re-emerging viral haemorrhagic disease resurfaced in West Africa with a 2022 outbreak in Ghana, posing an increased threat to Nigeria. Already facing outbreaks of Lassa fever and Mpox, Nigeria remains vulnerable to the devastating impact of a potential MVD outbreak. This study assessed the readiness and health literacy levels of doctors and nurses at a reference centre for viral haemorrhagic diseases in Nigeria to evaluate MVD preparedness.

Methods: A descriptive cross-sectional study was conducted in which healthcare workers across different specialties in a viral haemorrhagic reference centre in Nigeria were surveyed. Data was collected between May and July 2024 using semi-structured questionnaires. Frequencies and proportions were calculated for categorical variables and associations between them were tested for using chi-square tests.

Results: A total of 216 healthcare workers participated, comprising 126 doctors (58.3%) and 90 nurses (41.7%). The median age of nurses was 38 years while that of doctors was 29 years. Knowledge of Marburg Virus Disease (MVD) symptoms was higher among doctors (83, 65.9%) than among nurses (42, 46.7%), with fever (68.0%) being the most recognized symptom. Only 19.1% of doctors and 10.0% of nurses had received formal training on MVD. Doctors (69.1%) were more aware of MVD risk factors, such as close contact with infected individuals, compared to nurses (46.7%) (P<0.001). Confidence in hospital preparedness was lower among doctors (32.5%) than nurses (65.6%) (P<0.001). Most participants recommended regular training (84.9% of doctors, 66.7% of nurses) and seminars (69.1% of doctors, 46.7% of nurses) to enhance preparedness for MVD.

Conclusion: Healthcare workers demonstrated variable knowledge and limited formal training on MVD. Trainings and awareness programmes on MVD are recommended to address knowledge gaps and strengthen preparedness and response for MVD outbreaks in Nigeria.

Keywords: *health literacy, Marburg virus disease (MVD), epidemic preparedness, outbreak response, Healthcare workers*

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Poster 084

Gaps in understanding Lassa virus circulation and zoonotic risks at the human–wildlife interface in Côte d'Ivoire

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Introduction: Lassa fever remains endemic in West Africa, yet Côte d'Ivoire's position within the Lassa virus (LASV) belt is poorly documented. The country's ecological diversity, widespread wild meat consumption, and socio-economic reliance on wildlife-based livelihoods may heighten zoonotic transmission risks. However, key knowledge gaps persist regarding LASV circulation patterns, serotype distribution, reservoir species, and associated ecological dynamics. These gaps may compromise risk assessments, early detection, and outbreak preparedness.

Methods: This study aimed to assess the extent to which LASV surveillance is integrated into wildlife research in Côte d'Ivoire, to identify critical scientific and operational gaps, and to propose avenues for addressing them. A systematic review of peer-reviewed literature published between 2012 and 2022 was conducted using PubMed and Google Scholar. From 486 articles initially identified, 203 met inclusion criteria and were analyzed for study species, pathogens investigated, geographic coverage, diagnostic methods, and cross-sectoral collaboration, with a focus on LASV-related data.

Results: Findings reveal that fewer than 5% of studies addressed rodent-borne diseases. LASV detection was reported in *Mastomys natalensis* in Korhogo (northern Côte d'Ivoire), with strains genetically linked to a human case. Additionally, a fatal retrospective human case in Bangolo (western Côte d'Ivoire) and a historical LASV seroprevalence of 26% among forest workers underscore long-standing human exposure. Despite these signals, no LASV-specific surveillance initiatives were documented during the review period, even as new outbreaks emerge in neighboring countries.

Conclusion: Only five targeted studies on LASV have been conducted in Côte d'Ivoire over the past two decades. Current knowledge remains fragmented and academic, with major gaps in surveillance coverage, reservoir monitoring, and intersectoral coordination. Addressing these gaps requires a robust One Health strategy prioritizing longitudinal rodent studies, molecular diagnostics, behavioral risk assessments, and community-based syndromic monitoring. Strengthening collaboration between wildlife, veterinary, and public health sectors is essential to close LASV knowledge gaps and enhance regional health security.

Keywords: *Lassa circulation, Côte d'Ivoire, knowledge gaps, risks*

Challenges and opportunities in operationalising genomic surveillance in the Gambia public health system

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Introduction: The COVID-19 pandemic highlighted the global value of integrating pathogen genomic data into disease surveillance. However, country-level implementation varies widely. This study explored the opportunities and challenges of operationalising integrated genomic surveillance (IGS) in The Gambia. The aim was to understand the public health relevance of IGS and identify key barriers and enablers for implementation in the Gambia.

Methods: We used a qualitative study design. Data sources included a literature review, semi-structured interviews, and focus group discussions. Participants were stakeholders from One Health sectors, including ministries, national public health laboratory, teaching hospital, research, and international agencies. Ethical clearance and informed consent were obtained.

Results: Key barriers included limited funding, lack of skilled workforce, weak legislative frameworks, and governance gaps. Enablers identified were political commitment, trust in data sharing, intersectoral collaboration, and the existence of basic lab infrastructure. Opportunities exist to strengthen IGS through regional collaboration, building on Africa CDC initiatives and existing surveillance systems.

Conclusion: The Gambia shares common challenges with peer countries in operationalising IGS, particularly in capacity building and governance. Political support, regional networking, and trust-based data sharing are critical for success. The Robert Koch Institute and WHO Hub will continue supporting countries through baseline capacity assessments and technical tools from International Pathogen Surveillance Network (IPSN) to advance genomic surveillance integration in public health.

Keywords: *Genomic surveillance, Pathogen genomics, Public health systems, Capacity building, Data sharing, One Health*

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Poster 086

From Classroom to Clinic: Translating Training into Improved Lassa Fever Patient Outcomes

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Introduction: To address the urgent need for improved clinical capacity and reduce Lassa fever case fatality, the Lassa Fever Clinical Management Fellowship (LFCMF) was introduced in 2023 to provide clinicians with specialized knowledge and skills in various aspects of Lassa fever clinical management. This study examines the impact of the fellowship on Lassa fever outcomes by comparing key clinical indicators between centers with trained fellows and untrained fellows

Methods: A retrospective comparative analysis was conducted using data collected from 29 Lassa fever treatment centers across Nigeria from June 2021 to May 2024. The data included new admissions, current admissions, total discharge and deaths in treatment centers were extracted, while the treatment centers were categorized into two: those with an LFCMF-trained fellow (trained centers) and those without (non-trained centers). Key outcome indicators were calculated: discharge rate and mortality rate. The Chi-Square test was used to assess the differences in outcomes between trained and non-trained centers. Statistical tests, visualizations and trend analysis were performed.

Results: Trained centers demonstrated a lower overall discharge rate (44%) compared to non-trained centers (50%), a statistically significant difference (p < 0.024). While the overall mortality rate was slightly lower in trained centers (11%) than non-trained centers (14%), the difference was not statistically significant (p = 0.134).

Conclusion: The fellowship has contributed to improved patient outcomes, particularly in reducing case fatality. The study findings reflect lower referral rates in trained centers due to the presence of capable clinicians in those centers. While the mortality reduction was not statistically significant, the trends suggest a positive impact of the training on clinical practice. These findings highlight the value of structured, context-specific capacity-building initiatives in enhancing outbreak response and improving patient outcomes in Lassa fever.

Keywords: *Lassa fever, clinical fellowship, capacity building, patient outcomes, Nigeria, outbreak response, infectious disease training, CFR*

Lassa fever Outbreak Response in Nasarawa State Nigeria; Challenges and Lessons Learnt by the National Rapid Response Team-LIC 2025

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Introduction: Lassa fever is a major public health threat, and endemic in West Africa countries. It is primarily transmitted through contact with the urine or feces of infected multimammate rats or through contact with contaminated materials like food or household items. In Nigeria, outbreaks of the disease are typically observed during the dry season (December-April). Following a report of confirmed case of Lassa fever in Nasarawa State on 9th January, 2025, the National Rapid Response (NRR) team was deployed to support the state to curtail the outbreak.

Methods: The National Rapid Response (NRR) team supported the outbreak response by conducting epidemiological investigation; capacity building of health workers on surveillance; de-ratization of markets; risk communication and community engagement; observational assessment of the environment as well as assessment of food safety practices among community members.

Results: The index case was a 43-year-old pregnant female who had onset of malaria-like symptoms and bleeding disorder on the 6th of January 2025 and was confirmed as a case of Lassa Fever on the 13th of January 2025 after her demise. The average age among 46 patients line listed was 33.5 ± SD 15.4 and 28 (60.9%) were males. Out of the total samples collected, 2 (4.3%) were positive and 2 (6.5%) died, with case fatality of 100%. There were knowledge gaps in surveillance among health workers and suspected cases.

Conclusion: There was about 72 hours delay in the referral of index case from a private to public health facilities. This challenge may be due poor knowledge of priority diseases among health workers in private health facilities and poor health seeking behaviour of patients. Therefore, continuous public awareness and capacity building of private health workers on enhance surveillance for Lassa fever and priority diseases should be scale up and sustained.

Keywords: *Lassa fever; National Rapid Response Team; Community; Suspected Case; Confirmed Case; Index Case; Surveillance; Knowledge; Nasarawa State.*

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Poster 088

Utilizing local solutions through active community engagement to strengthen Lassa fever prevention and control in Ondo state, Nigeria, July 2024

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Background: Lassa fever (LF) is endemic in Ondo State, Nigeria, with yearly outbreaks reported. A novel approach called Local Innovations Scaled through Enterprise Networks (LISTEN) was piloted in 2 high-burden Local Government Areas (LGAs) in Ondo State to optimize control efforts. LISTEN is a co-creation iterative strategy utilizing a human-centered design to identify challenges and solutions that are data-driven through continuous data review and leveraging Communities of Practice (CoP) for implementation and sustainability.

Methods: Data was collected through a semi-structured questionnaire for community needs assessment, key informant interviews, and focus group discussions with 71 respondents, including politicians, community leaders, and healthcare workers in Akure-South and Owo LGAs. Manual thematic analysis identified challenges in LF prevention, focusing on healthcare access, environmental conditions, and social behaviors. Data was securely archived on a shared drive, accessible only to the project team.

Results: While challenges included poor healthcare access (long distances to testing centers, high costs), misconceptions delaying care, unhygienic food storage, and environmental risks (unkempt bushes, open dumps), local solutions emerged which includes community-based sample collection points, training traditional leaders as educators, monthly sanitation drives with youth groups, women's cooperatives promoting rat-proof storage, and survivor-led advocacy to reduce stigma. These community-driven strategies showed high acceptance for sustainable LF control.

Conclusion: The study demonstrated that community engagement and collaborative public health efforts are critical to controlling LF outbreaks. Immediate actions include improved waste management, raising awareness to reduce stigma, and promoting good food hygiene to prevent future outbreaks in Ondo State. These insights provide a roadmap for leveraging local LF control resources and expanding efforts to other endemic regions.

Keywords: *Outbreaks, Community Engagement, Social behaviours*

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Poster 089

Regard socio-anthropologique sur les politiques de surveillance des maladies en Côte d'Ivoire

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Introduction : La surveillance de la santé publique (SSP) est un pilier des politiques sanitaires, en particulier dans les pays à faibles ressources. Souvent abordée sous un angle biomédical et épidémiologique, elle reste peu analysée du point de vue des sciences sociales. Cette contribution propose une lecture socio-anthropologique du fonctionnement du système de SSP en Côte d'Ivoire pour mieux comprendre les facteurs qui en limitent l'efficacité.

Méthodes : Cette recherche qualitative a été conduite dans le cadre du programme *Public Health Action for Côte d'Ivoire* (2023-2025), en partenariat avec l'Institut Robert Koch et la Chaire Unesco de Bioéthique. Elle repose sur 45 entretiens semi-structurés réalisés auprès d'acteurs institutionnels et hospitaliers, ainsi qu'une revue documentaire. L'analyse a porté sur les pratiques de collecte, de gestion et de diffusion des données sanitaires. L'objectif est de montrer comment les enjeux liés à la collecte, au traitement et à la diffusion des données peuvent compromettre la fiabilité et la qualité des informations utilisées dans les prises de décision en santé publique.

Résultats : Les résultats révèlent une fragmentation institutionnelle, une faible coordination entre acteurs, une mobilisation limitée de l'État et l'absence de mécanismes fiables de partage des données. Les jeux d'acteurs, les tutelles administratives multiples et les hiérarchies institutionnelles influencent fortement le circuit de production de l'information sanitaire. De plus, les agents de santé en charge de la surveillance manquent souvent de compétences techniques en gestion des données. Ces dysfonctionnements compromettent la qualité des données disponibles pour la prise de décision en période épidémique.

Conclusion : L'étude plaide pour une réforme structurelle du système de SSP en Côte d'Ivoire, fondée sur le renforcement des capacités, la coordination interinstitutionnelle et l'intégration des sciences sociales. Une telle approche permettrait de dépasser les logiques technocratiques et de proposer des réformes plus adaptées aux réalités locales. Toutefois, l'accès limité aux données reste un frein majeur à une évaluation critique et opérationnelle du système.

Mots clés : *Surveillance sanitaire, Côte d'Ivoire, systèmes de santé, sciences sociales, épidémies*

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Poster 090

Épidémiologie de la Fièvre Lassa en Guinée : Fréquence et analyse des Facteurs de Risque de transmission

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Introduction : Cette étude avait pour objectif d'analyser la répartition géographique et les facteurs de risque liés à la transmission de la fièvre Lassa en Guinée.

Méthode : Il s'agit d'une étude rétrospective et analytique menée du 12 février au 30 avril 2025, dans les huit régions administratives de la Guinée. Les données couvrant la période 2021-2025 ont été recueillies auprès des acteurs des structures sanitaires. Une analyse qualitative et univariée a permis d'identifier les facteurs associés à la transmission.

Résultats : Au total, 118 cas suspects de fièvre Lassa ont été notifiés entre 2021 et 2025, dont 16 confirmés, soit un taux de positivité de 14 %. La moitié des cas confirmés a été enregistrée en 2022 (50 %), suivie de 2021 (25 %), 2024 (18 %) et 2025 (1 %). Les cas provenaient principalement des régions de N'Zérékoré (50 %), Conakry (49 %) et Kindia (1 %). La majorité des patients confirmés étaient des femmes (57 %), avec un âge moyen de 41 ans (entre 8 et 65 ans). Les agents de santé représentaient la catégorie professionnelle la plus touchée (50 %), suivis des ouvriers (18 %). À l'admission, 94 % des cas présentaient une forme clinique modérée, contre 6 % avec une forme grave. Tous les patients confirmés ont été pris en charge dans les centres de traitement (CTEPI) dans un délai inférieur à six jours après l'apparition des signes cliniques et ont reçu un traitement à base de ribavirine. Les facteurs de risque significativement associés à la transmission comprenaient la présence de rongeurs dans les habitations, leurs excréments et leur consommation (OR = 5,07 ; IC 95 % : 1,36–18,87 ; p = 0,015).

Conclusion : La fièvre Lassa demeure une menace en Guinée, nécessitant un renforcement des mesures de prévention et de sensibilisation.

Mots clés : Epidémiologie, Lassa, Facteurs, Risque, Transmission

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Poster 091

Establishment and Implementation of the West African Biorisk Management Network: A Progress Report of the West African Health Organisation

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Background: In response to persistent gaps in Biorisk Management (BRM) implementation in West Africa, a unified effort among biosafety and biosecurity (B&B) stakeholders led to the creation of the WABNet. Coordinated by WAHO, WABNet brings together representatives from all 15 ECOWAS Member States, alongside partners such as GFA, Global Affairs Canada, IFBA, Africa CDC, WHO AFRO, ASLM, Fondation Mérieux, and others. Its mission is to build and sustain regional capacities for the safe and secure handling of high-consequence pathogens.

Methods: WABNet's establishment was guided by a series of stakeholder consultations, resulting in the formation of a Technical Working Group and the development of a five-year strategic plan. Regional workshops, involving representatives from all ECOWAS countries and partner institutions, were held to define strategic objectives and strengthen BRM. Training sessions and IFBA certification workshops in BRM and Biological Waste Management (BWM) were conducted in partnership with Africa CDC, aiming to develop a skilled and certified B&B workforce across the region.

Results: Formally launched in 2021 during an online workshop, WABNet's five-year strategic plan and governance manual were technically validated in 2023. Since then, 70 professionals from both human and veterinary sectors across 15 countries have been trained and certified in BRM — including in eight countries that previously had no trained personnel. In BWM, the number of IFBA-certified professionals has increased from 2 to 36 across 11 countries. Furthermore, in addition to the five existing biosafety associations in the region, two new associations have recently been established.

Conclusion: The growing cadre of certified professionals is now positioned to cascade training and reinforce biosafety practices at national and subnational levels, supporting laboratories in aligning with international standards. The establishment and expansion of national B&B associations will also enhance advocacy, intersectoral collaboration, and policy engagement with relevant ministries across the ECOWAS region.

Keywords: *Biosafety, Biosecurity, Biological Waste Management, IFBA certified professionals*

Emergence de Mpox au Togo : Rapport sur les deux premiers cas dans le district sanitaire du Golfe, mai 2025

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Introduction : La sous-région ouest africaine connaît une épidémie sans précédent de Mpox. Le Togo a notifié pour la première fois des cas en mai 2025 dans le district sanitaire du Golfe. Nous avons cherché à décrire les deux premiers cas de Mpox au Togo.

Méthode : Il s'est agi d'un rapport de cas conduit en mai 2025. A l'aide d'une grille d'entretien, les données sociodémographiques, cliniques, facteurs d'exposition et listing des contacts ont été recueillies. Les écouvillonnages des lésions vésiculeuses cutanées réalisés ont fait l'objet de test de polymérisation en chaîne (PCR) en temps réel puis d'un séquençage.

Résultats : Les deux premiers cas de Mpox étaient un couple résidant au Togo et vivant séparément. La femme de nationalité togolaise âgée de 22 ans est une esthéticienne et l'homme de 37 ans, un bijoutier sénégalais. Les premiers symptômes sont apparus chez l'homme deux jours après un séjour de trois jours à Cotonou au Bénin, marqué par une brulure mictionnelle, hématurie et lésions cutanées vésiculo-pustuleuses sur les organes génitaux externes. Il aurait eu des rapports sexuels non protégés avec sa partenaire la veille de son voyage. Cette dernière a présenté six jours plus tard une fièvre, courbatures et lésions vésiculo-pustuleuses localisées au visage, paume des mains, plantes des pieds et génital. Le clade IIb a été identifié par PCR puis séquençage. Quarante-sept contacts ont été identifiés dont 53% en milieu familiale et 47% en milieu hospitalier.

Conclusion : L'émergence de Mpox au Togo est survenue chez un couple ayant présenté des signes classiques de la maladie, après une exposition par contact sexuel et ayant engendré une vingtaine de contacts en milieu hospitalier. Cela constitue un appel au renforcement des mesures de prévention contrôle des infections en milieu de soins.

Mots clés : *Emergence, Mpox, rapport, Togo*

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Poster 093

Strengthening Infection Prevention and Control Capacities in West Africa: From National Trainings to Regional Preparedness

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Background: Infection Prevention and Control (IPC) remains a major challenge in West Africa due to persistent healthcare-associated infections (HAIs) and recurrent outbreaks like Mpox. Training is vital to build the capacity of health personnel and ensure patient safety. The West African Health Organisation (WAHO) launched IPC strengthening initiatives focused on standardized healthcare worker training, improved outbreak preparedness, and systematic evaluation of national IPC systems. This paper highlights key outcomes and lessons from these efforts.

Methods: A mixed methods approach was used to assess outcomes and lessons from national and regional IPC trainings held from April to October 2024 in Togo and The Gambia. Health workers were purposively selected for the national sessions, which used the WHO-endorsed "Clean Box" method. A regional workshop with 13 ECOWAS countries used the WHO IPC Assessment Framework (IPCAF) to evaluate IPC programs. Pre- and post-training data were collected nationally, while the regional meeting included stakeholder consultations. Data analysis combined descriptive statistics with thematic content analysis.

Results: A total of 320 participants were trained at the national level. Post-training tests indicated that 85% of participants demonstrated proficiency in IPC skills, including PPE usage and environmental decontamination. In Togo, 60% of health centres adopted standardized waste disposal practices, compared to 33% in The Gambia. Regionally, the workshop produced 55 IPC trainers and harmonized Mpox response strategies, including triage protocols and border surveillance. IPCAF results revealed critical gaps in 70% of countries, especially in surveillance and resource allocation.

Conclusion: These initiatives strengthened alignment between national IPC efforts and regional preparedness. The Clean Box model proved adaptable, while IPCAF enabled targeted system improvements. This multilevel strategy highlights how standardized training and regional collaboration can enhance IPC systems, even in limited-resource settings. Sustained mentorship, funding, and institutionalization of best practices will be essential for long-term impact.

Keywords: *Infection Prevention and Control, Mpox, Healthcare-Associated Infections, Regional Preparedness, Capacity Building*

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Poster 094

Hemorrhagic pericardial effusion in Lassa virus disease in children: A report of three cases

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Introduction: Lassa virus disease (LVD) is a viral hemorrhagic illness with varied manifestations. Polyserositis has been identified as a manifestation of LVD including pleural effusion and effusive pericarditis especially in adults. We report three cases of hemorrhagic pericardial effusion to heighten the index of suspicion for Lassa pericarditis, enhance prompt diagnosis and treatment among children presenting with bloody effusive pericarditis especially in Lassa fever endemic areas.

Methods: The clinical notes of three male patients who presented with bloody effusive pericarditis over a one year period were retrieved. Their presentations, laboratory findings, treatment and outcome were outlined.

Case report: The cases were 3 male children (Cases 1, 2 and 3) aged 13, 9 and 15 years seen between January and December 2024. The clinical presentations, examination findings and investigations were in keeping with acute and post infectious hemorrhagic pericardial effusion due to LVD after the common causes of hemorrhagic pericardial effusion in our environment were ruled out. Case 2, surprisingly, had a positive polymerase chain reaction (PCR) test of the hemorrhagic pericardial effusion but a negative serum PCR test. All three cases recovered fully and were seen in the out-patient clinic 2 weeks after discharge in good health.

Conclusion: Effusive pericarditis in LVD can mimic effusive pericarditis by other etiologic agents, so, LVD should be a differential diagnosis in any child with hemorrhagic pericardial effusion especially in Lassa endemic regions. A high index of suspicion, prompt diagnosis and treatment of these cases will reduce morbidity and mortality.

Keywords: Polyserositis, Lassa fever, Lassa polymerase chain reaction, Pericardiotomy, Effusive pericarditis

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Poster 095

Optimization of Laboratory Networks for Epidemic-Prone Diseases in Nigeria: A Geospatial Approach

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Introduction: Nigeria continues to experience recurring outbreaks of epidemic-prone diseases such as Lassa Fever, Yellow Fever, and Mpox. Despite investments to expand diagnostic access, challenges in geographic coverage and timeliness persist. This study uses a geospatial diagnostic network optimization (DNO) approach to systematically analyze Nigeria's laboratory network for epidemic-prone diseases and propose improvements for outbreak detection and response.

Methods: A national-level geospatial analysis was conducted using ArcGIS Pro and OptiDx. Inputs included population density, disease burden, facility locations, and laboratory capacities. Optimization scenarios evaluated travel time reductions and strategic lab placements under varying disease probability assumptions.

Results: The baseline analysis revealed laboratory coverage gaps and areas with long turnaround times. Optimization scenarios proposed relocation and addition of labs that significantly improved accessibility and reduced travel time, especially in high-risk zones.

Conclusion: Geospatial DNO enables strategic planning for epidemic preparedness. Insights from this study support the NCDC's policy and investment decisions to improve surveillance and early response capacities.

Keywords: *Geospatial analysis, Diagnostic network optimization, Laboratory access, Lassa Fever, Nigeria, Public health infrastructure*

Abstract ID: ELIC202580
Poster 096

Socio-demographic, climatic, ecological and clinical predictors of Lassa fever virus positivity in Nigeria: Analysis of multi-year national surveillance data, 2018-2021.

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Introduction: Lassa fever, a re-emerging zoonotic viral hemorrhagic disease caused by the LASV remains a major public health concern in Nigeria. Effective prevention and control of LF is dependent on addressing potential drivers of LASV transmission across the human-environment-animal interface. We therefore describe the epidemiological profile, trend, seasonality, and factors associated with LASV positivity in Nigeria from 2018 to 2021.

Methods: We retrospective analyzed national LF surveillance data abstracted from the SORMAS platform of the Nigeria Centre for Disease Control and conducted multivariable binary logistic regression analysis to identify factors associated with LASV positivity.

Results: Between January 2017 and December 2021 Nigeria recorded a total of 20167 suspected LF cases with an overall viral positivity of 16.3%. Cases were mostly males (56.0%) with a median age of 30.0 (IQR: 20.0-42.0) years, seen mostly in the South-south geo-political (49.0%), temperate-humid climatic (72.0%), and in the Lowland rainforest ecological zones (69.6%). Predictors of LASV positivity were the first (aOR=2.86, 95% CI: 2.42-3.41), third (aOR=1.41, 95% CI: 1.12-1.77), and fourth (aOR=1.77, 95% CI: 1.44-2.18) quarters of the year; the temperate climatic zones (aOR= 1.44, 95% CI: 1.16-1.78); the Jos Plateau (aOR= 1..66, 95% CI: 1.36-2.03), Derived Savannah (aOR= 1.44, 95% CI: 1.15-1.81), and Guinea Savannah (aOR= 2.65, 95% CI: 2.08-3.35) ecological zones; male sex (aOR= 1.23, 95% CI: 1.12-1.35); age group 15-44 (aOR= 1.33, 95% CI: 1.13-1.58) and 45-59 years (aOR= 1.34, 95% CI: 1.10-1.63); and artisan or trader (aOR= 1.17, 95% CI: 1.01-1.36). Clinical predictors were abdominal pain (aOR= 1.49, 95% CI: 1.33-1.66); anorexia (aOR= 1.56, 95% CI: 1.32-1.84); chest pain (aOR= 1.40, 95% CI: 1.16-1.67); diarrhea (aOR= 1.19, 95% CI: 1.01-1.40); fatigue (aOR= 1.25, 95% CI: 1.10-1.40); fever (aOR= 1.15, 95% CI: 1.02-1.30); muscle pain (aOR= 1.55, 95% CI: 1.20-2.00); nausea (aOR= 1.33, 95% CI: 1.09-1.62); vomiting (aOR= 2.25, 95% CI: 1.99-2.54); confused or disoriented (aOR= 2.61, 95% CI: 1.60-4.25); malaise (aOR: 1.60, 95% CI: 1.24-2.06).

Conclusion: Climatic, ecological, socio-demographic factors are important drivers of LF transmission in Nigeria. Public health interventions need to target these factors to effectively control LF outbreaks in Nigeria.

Keywords: Lassa fever, epidemiology, viral positivity, predictors, Nigeria

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Poster 097

Lassa Fever in Pregnancy Resulting in Maternal Mortality: A Report of Two Cases

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Introduction: Lassa fever is a zoonotic viral haemorrhagic fever that is often fatal, with pregnant women carrying a threefold risk of maternal and perinatal mortality. In pregnancy, the disease often presents with symptoms which overlap with other febrile illnesses and pregnancy-specific conditions.

Case presentation: We are reporting two cases of Lassa fever in unbooked pregnant women who presented to our facility with severe febrile illness, haemorrhagic signs, seizures and rapid clinical deterioration. These clinical features at presentation and bedside tests raised suspicion of viral haemorrhagic fever. However, the diagnosis was confirmed with Lassa PCR. Both women died within 12 hours despite prompt resuscitative measures.
Clinical discussion: These cases highlight the diagnostic challenge of Lassa fever among pregnant women due to its nonspecific presentation. The delay in recognizing its symptoms in pregnancy and the disease's rapid progression resulted in poor outcomes. A high index of suspicion is necessary.

Conclusion: Prevention of Lassa fever infection remains key, both in the community and the hospital. As there is currently no approved vaccine for Lassa fever, effective prevention through rodent control and strict infection control protocols are paramount.

Keywords: *Lassa fever, viral haemorrhagic fever, maternal mortality, pregnancy*

Abstract ID: ELIC2025454
Poster 098

Circulation of Influenza Viruses In Conakry (Guinea)

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Introduction: In the Republic of Guinea, the first influenza surveillance sentinel sites were set up in 2018. The aim of this study was to identify the main circulating influenza strains.

Materiel et Methodes: Our study was retrospective and lasted three months. It focused on patients admitted to sentinel sites in Conakry for influenza-like illness. The viruses were identified by RT-PCR.

Results: During the study period, 169 patients with influenza-like illnesses were sampled. The median age was 5 years. Females were most affected (51.5%). No patient was vaccinated against influenza. Clinically, the main symptoms were cough (96.4%) and fever (94.7%). RT-PCR was positive in 43 patients (25%). B-type viruses accounted for 88.4% of the total, with B/Victoria predominating (76.7%). Type A viruses accounted for 11.6% of the total, and were all of the A/H3N2 subtype. We did not find any A/H1N1.

Conclusion: This surveillance must be continued in Conakry and extended to the health districts in order to better participate in the global effort to combat influenza. Authorities must make flu vaccine and treatment available in Guinea.

Keywords: *Conakry, Guinea, Influenza, Sentinel site, Surveillance*

Abstract ID: ELIC2025419
Poster 099

Descriptive Analysis of Lassa fever Outbreak in Taraba State, Nigeria; Epi Week 1 – Epi Week 7, 2025.

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Introduction: The Lassa virus is the cause of Lassa fever (LF). It is an endemic in some states in Nigeria. Inadequate infection prevention and control measures, increases transmission of LF. In January 2025, the index case of the outbreak was reported from Bali, Taraba State. We investigated and contained the outbreak to assess its scope, describe, and implement public health measures.

Methods: We defined a suspected case as "any resident of Taraba State with severe febrile illness not responsive to the usual causes of fever in the area with or without sore-throat and at least one of the following: bloody stools, vomiting blood, bleeding into the skin and unexplained bleeding from the nose, vagina or eyes" January 1, 2025. We reviewed surveillance reports and hospital records. A standardized line-listing form was developed to capture clinical and demographic information of the cases. The aim was to contain and describe the outbreak in time, place, and person.

Results: A total of 165 suspected cases, 70(42%) confirmed cases and 37(22.4%) deaths were recorded. Jalingo Local Government Area had the highest number of suspected cases 52(32%), Bali 35(21.2%) and Ardo-Kola LGA 20(12.1%). The highest number of confirmed cases were reported from Bali 23(33%), Ardo-Kola 15(21.4%) and Jalingo (14)20%. The majority of the cases were reported in epi week 4 and age group 15 – 24 years were the most affected with 30(43%) cases. A total of 46(66%) of all reported confirmed cases were males. Ardo-Kola had an attack rate of 10.9 per 100,000 higher than other reported LGAs. The overall case fatality rate (CFR) across the LGAs was 53%.

Conclusion: The LF outbreak was investigated and described. We assisted the State Ministry of Health in strengthen the LF surveillance and community sensitization. We recommended the SMOH to conduct regular training on IPC to healthcare workers.

Keywords: *Attack rate (AR), Case Fatality Rate (CFR), Infection Prevention and Control (IPC), Lassa fever (LF), Local Government Area (LGA), and State Ministry of Health (SMOH).*

Abstract ID: ELIC2025353
Poster 100

Innovative clinical training for infectious disease management in resource-limited settings: The Lassa Fever Clinical Management Fellowship (LFCMF) model

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Introduction: Lassa fever (LF) remains endemic in West Africa and challenges health systems as frontline clinicians lack specialized training in managing viral haemorrhagic fevers. Traditional approaches often fall short in addressing local realities or building sustained capacity. The Lassa Fever Clinical Management Fellowship (LFCMF) was developed to bridge this gap. This study assessed the effectiveness of the LFCMF in strengthening clinical capacity for LF, whilst exploring its potential as a replicable model for other infectious diseases.

Methods: A descriptive mixed-method study was conducted between August and September 2023 in Nigeria, for clinicians from LF treatment centres in endemic states. Eligibility criteria included prior clinical experience and the capacity to mentor post-fellowship. The fellowship was a hybrid of didactic sessions, clinical rotations, and mentorship. Clinical skills assessment focused on clinical knowledge, diagnostic accuracy, and adherence to treatment and infection prevention protocols. One-on-one interviews were conducted to explore their experiences, perceived impact, and intentions to apply the model in their home institutions.

Results: Post-training assessments among 12 clinicians showed a 19% average improvement in knowledge of LF clinical management for mild and complicated cases. Qualitative analysis highlighted the impact of hands-on exposure to multidisciplinary LF care, as participants shared their understanding of integrated and holistic LF care and increased confidence in case management. About 80% expressed a strong interest in cascading the training at their centres, emphasizing the value of consistent clinical exposure and real-time application of national guidelines. These transformative elements directly apply to their practice.

Conclusion: The LFCMF demonstrates that targeted, practical training programs can significantly strengthen frontline clinical capacity in resource-limited settings. This model offers a scalable and adaptable framework for enhancing preparedness and response for outbreaks of other infectious diseases.

Keywords: *Lassa fever, clinical training, fellowship program, infectious disease management, workforce development, resource-limited settings*

Evaluation de la surveillance épidémiologique de la méningite dans le district sanitaire de Kolondièba, région de Sikasso de 2021 à 2024

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Introduction: la méningite est une inflammation des méninges, qui enveloppent la moelle épinière et du cerveau dans lesquelles circule le liquide céphalorachidien. Le district de Kolondièba, dans le cadre de la surveillance épidémiologique seulement 7/24 structures ont fait moins d'une notification dans les 4 dernières années soit 29,16%, d'où l'objet d'évaluer le système surveillance de la méningite dans le district sanitaire de Kolondièba de 2021 à 2024.

Méthode: nous avons mené une étude transversale descriptive de 2021 au 2024 sur les données de la méningite, Un échantillonnage exhaustif a été fait dont la taille était 27 individus, examinassions des dossiers, faire des interviews, adressé les questionnaires aux acteurs: les directeur technique du centre, le médecin chef, responsable des labo, chargé de la surveillance et le Médecin d'appui de la surveillance ont été inclus et tous ceux qui n'était pas disponible ou refusé de répondre aux questions ont été non inclus.

Résultats : nous avons constaté une bonne organisation de fonctionnement du système de surveillance notamment dans la remonté des données, des canaux de communication et le partage d'informations à différents niveaux du système. Nous avons aussi obtenu une utilité de satisfaisante de 82,25%, une simplicité de 81%, une acceptabilité de 29%, une complétude de 100% en 2024 et une promptitude de 65%.

Conclusion : la surveillance des cas étant une activité incontournable dans la lutte contre les épidémies et catastrophes, cas de la méningite qui laisse des séquelles invalidantes même parfois après une bonne prise en charge, la formation des acteurs et la notification régulière des cas suspects, faire régulièrement les vaccinations de routine pourrai nous aider considérablement à éliminer ou réduire les cas en évitant les épidémies et les séquelles vicieuses.

Mots clé : *Evaluation, Système, Surveillance, méningite, attribut, Kolondieba. 2024*

Abstract ID: ELIC2025471
Poster 102

Amélioration de la gestion des données de laboratoires grâce au système informatisé de gestion des laboratoires (SIGL) : mise en œuvre de LabBook 3.5

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Introduction : La demande de plus en plus importante de tests de laboratoire, notamment dans le cadre de la surveillance épidémiologique nécessite l'utilisation de SIGL de qualité. Plusieurs plateformes proposant des fonctionnalités différentes existent sur le marché international. Le LabBook est « intra-laboratoire », « open-source » gratuit et adaptable. C'est pourquoi, le réseau régional des laboratoires de référence (RRLR) mis en place par l'OOAS et soutenu par le programme PROALAB a choisi LabBook 3.5 pour y être déployé.

Matériel et Méthodes : Après évaluation des versions antérieures de LabBook, certaines faiblesses et manquements avaient été identifiées, notamment la non-adaptation à des laboratoires de grande envergure. Dès lors, plusieurs fonctionnalités ont été ajoutées pour la rendre plus adaptée à des laboratoires de surveillance. Un projet pilote d'installation dans trois laboratoires clés de trois pays différents de la région ouest-africaine a été proposé.

Résultats : La plateforme LabBook 3.5 a été développée et permet, après saisie, de relever les résultats automatiquement par analyse ou par pathogène. Elle permet également de faire le suivi des échantillons et d'identifier leur aire de stockage dans les congélateurs. La programmation de la maintenance des équipements est fonctionnelle. La fonction LabBook Connect permet une capture automatique des résultats des automates comme GenXpert et est interopérable avec d'autres plateformes (DHIS2, etc). Cette nouvelle version a été installée dans trois laboratoires dans le cadre de la phase pilote : le laboratoire de l'hôpital national de Niamey, Niger ; le laboratoire de Saint-Louis, Sénégal et le laboratoire universitaire de Lomé, Togo.

Conclusions et Etapes à venir : Le LabBook version 3.5 facilite et accélère le travail fastidieux de capture des données au laboratoire et permet de diminuer les erreurs de saisie. Lors d'une deuxième phase, il est prévu de déployer la plateforme dans vingt-cinq laboratoires du RRLR.

Mots-clés : *Système informatisé de gestion des laboratoires, LabBook 3.5, open-source, système de gestion de la qualité, biosécurité.*

Abstract ID: ELIC2025313
Poster 103

Modelling the Impact of Asymptomatic Populations on the Effectiveness of Mass Testing on Lassa Fever Incidence in Edo State, Nigeria.

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Introduction: Lassa Fever (LF) is an acute viral zoonotic disease of public health concern particularly in West Africa. It is endemic in Nigeria with a case fatality ratio of 16.9%. Edo state is one of the country's high-burden states, accounting for about 23% of total confirmed cases and 17 deaths as of September 2024. Symptoms of LF are generally non-specific and 80% of cases are either mild or asymptomatic leading to several missed/undetected cases, so this study aimed to evaluate the impact of this asymptomatic populations on effectiveness of mass testing on LF incidence in Edo State, Nigeria.

Method: This was a cross-sectional analytical study. A modified SEIR deterministic compartmental model was used to develop and simulate the impact of mass testing on LF dynamics. The modification involved bifurcating the susceptible population into symptomatic and asymptomatic and including a testing compartment. Edo State LF incidence data from 2018-2024 were extracted from Nigeria Centres for Disease Control and Prevention (NCDC). Model parameters were derived through an exhaustive search strategy of existing relevant literature on LF transmission dynamics and testing rates. Data analysis was done using Microsoft Excel 365 for descriptive statistics while Basic reproduction number (R0) and sensitivity analysis was by Python and R version 4.4.2. The effects of the mass testing were simulated in three scenarios.

Results: Total cases analysed were 6760, of which 1290 were positive. R0 of 7.56 was calculated. Scenario analysis revealed that mass testing of both symptomatic and asymptomatic populations provided the best results in controlling LF transmission. This was followed by testing the asymptomatic population only and then the symptomatic population only.

Conclusion: While capturing asymptomatic populations for mass testing is critical in the mitigation of LF transmission, incorporating both symptomatic and asymptomatic populations is highly recommended as an effective control strategy.

Keywords: *Modelling, Lassa fever, Mass testing, asymptomatic, Edo State*

Abstract ID: ELIC2025122
Poster 104

Ocular Sequelae in a Lassa Fever Survivor at Fmc Owo Isolation Centre, Ondo State, Nigeria.

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Introduction: Lassa fever is an acute zoonotic, highly contagious, often fatal haemorrhagic fever caused by the Lassa virus, a member of the Arenaviridae family. The disease symptoms vary from mild flu-like illness to severe multi-organ dysfunctions caused by fever, vascular permeability, plasma volume depletion, coagulation abnormalities, and varying degrees of haemorrhage.

Method: This is a case report showcasing the ocular manifestation and complication developed by a female undergraduate with Lassa fever, with admitting CT values of 28.56 and 26.87 on the G and L genes respectively. Clinical presentation includes fever, abdominal pain, and abnormal bleeding from both the vagina and injection sites. She had visual impairment of her left eye; with further investigations revealing a left vitreous haemorrhage with complicated cataract and suspected retinal detachment and glaucoma of the right eye. She had cataract extraction done but still unable to see with her left eye; necessitating her referral for retinal surgery.

Results: This case illustrates a severe, irreversible ocular complication of Lassa fever, a contrast to the transient conjunctival or anterior segment involvement previously reported.[5] The patient's vitreous hemorrhage, cataract, and retinal detachment suggest profound vascular and inflammatory damage, possibly mediated by Lassa virus-induced endothelial injury and coagulopathy.
This case parallels rare reports of haemorrhagic retinopathy in other viral haemorrhagic fevers like Ebola, implying a shared mechanism of vascular leakage and immune-mediated damage.[3]

Conclusion: This clinical case lends credence to the ocular manifestations of Lassa fever, with the permanent visual loss seen highlighting the far-reaching ophthalmic complication of Lassa fever. This calls for awareness to ensure early ophthalmological assessment, as well as long-term follow-up of those affected post-recovery. Further studies are needed to explore Lassa virus' ocular tropism, biomarkers of risk, and the role of antivirals and steroids in mitigating inflammation.

Keywords: *Lassa fever; Ocular; Sequelae; Survivor; Isolation centre*

Abstract ID: ELIC2025323
Poster 105

Clinical and epidemiological characteristics of confirmed Lassa Fever cases in Ebonyi State, Nigeria: a case series analysis.

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Background: Lassa fever (LF) is a viral haemorrhagic illness endemic in West Africa and a persistent public health threat in Nigeria. Ebonyi State is a high-burden hotspot, with repeated seasonal outbreaks and high case fatality. Despite improved laboratory diagnostics, challenges in early case recognition, misdiagnosis as malaria especially at the lower facilities, and delays in care persist. This study is aimed to describe the clinical, epidemiological, and outcome of confirmed LF cases identified during the 2024/2025 outbreak in Ebonyi State.

Methods: We conducted a retrospective-prospective case series study using data from ten (10) laboratory-confirmed LF cases reported between December 2024 and February 2025. Data sources included standardized outbreak investigation forms, hospital records, and direct interviews with patients or relatives. Information collected included demographics, clinical symptoms, exposure history, treatment received, and outcome. Descriptive analysis was performed and supplemented by narrative case-level insights.

Results: Ten confirmed cases were documented: median age was 26 years (range 2–45); Male 6[60%], female 4[40%]. Three cases (30%) were children under 10. Four patients (40%) died. All fatalities had late presentation (≥7 days) or severe complications, including acute kidney injury and bleeding. Three cases were co-infected with malaria. One child died within 30 minutes of arrival at the facility. Another patient, a young adult from a non-endemic state, experienced diagnostic delays across three health facilities. One patient was brought under police escort due to suspected stigma. Only 60% of cases had complete outcome documentation, highlighting follow-up gaps during outbreaks.

Conclusion: This case series highlights the consequences of diagnostic delays, co-infections, and fragmented care pathways in LF outbreaks. Early suspicion/referral, dual malaria/Lassa testing, and pediatric-specific response strategies are urgently needed. Strengthening surveillance can reduce mortality and improve outcomes in endemic states like Ebonyi.

Keywords: *Lassa fever, Nigeria, Case series, outbreak response*

Evaluation de la prise en charge des patients hospitalisés au Centre de Traitement de la Fièvre Hémorragique Virale Lassa (CTFHV) de Parakou au Bénin.

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Introduction : Depuis 2014, le Bénin connaît chaque année, une épidémie de fièvre hémorragique virale Lassa. Celle de décembre 2018 à mars 2019 fut la plus longue avec une plus longue durée de séjour des patients mis sous traitement à la ribavirine.
Pour apprécier la qualité des soins offerts aux patients hospitalisés au CTFHVL de Parakou, cette étude a été initiée par le Ministère de la Santé.

Méthodologie : IL s'agit d'une étude retrospective qui s'est déroulée au CTFHVL en avril 2019, ayant porté sur les dossiers des patients hospitalisés de 2016 à 2019. Les données ont été recueillies à l'aide d'un guide de dépouillement et les données sur les connaissances des agents de santé ont été collectées à l'aide d'un questionnaire. Elles ont été analysées par le logiciel Epi Info.

Résultats : Au total 18 patients suspects étaient hospitalisés, dont 09 de sexe féminin et 09 de sexe masculin, avec respectivement 33,33% et 44, 44% confirmés positifs. La tranche d'âge la plus représentée était comprise entre] 5-15] à 52,63%. Tous les patients confirmés positifs, étaient venus au centre dans un délai compris entre 02 et 08 jours après l'apparition des premiers symptômes. La durée de séjour variait de 01 à 47 jours et tous les patients étaient sortis vivants.
Parmi le personnel soignant, 94,44% avaient une bonne connaissance de la période d'incubation contre 66 % qui ne maîtrisaient pas la définition de cas suspect de Lassa.

Conclusion : La prise en charge médicale et psychologique des cas de fièvre hémorragique virale Lassa est de plus en plus améliorée sur le site de Parakou. Toutefois, le personnel soignant a besoin de faire assez d'exercices de simulation pour maintenir les acquis.

Mots clés : *Fièvre Lassa, Parakou, prise en charge*.

Perceived Risk of Lassa Fever Infection and Its Preventive Practices Among Residents of Owo and Ifedore Local Government Areas of Ondo State, Nigeria

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Introduction: Lassa fever is a zoonotic viral hemorrhagic disease endemic in Nigeria, with recurrent outbreaks affecting rural and urban populations. Perception of risk encompassing perceived susceptibility and severity plays a pivotal role in shaping preventive practices. This study assessed and compared the perceived risk of acquiring Lassa fever and practice of Lassa fever preventive measures.

Methods: The study was a comparative cross-sectional survey that employed quantitative design. Three hundred and thirty-two respondents per group were selected from the two LGAs (one endemic and non-endemic) using multistage sampling method. Data were collected using semi-structured questionnaire Data were analyzed using IBM Statistical Product for Service Solutions (IBM-SPSS) version 25. The level of significance was set at p < 0.05.

Results: The results showed that, ninety-four percent (Ifedore) and ninety eight percent (Owo) respondents LGA were aware of Lassa fever. Twenty eight percent were within the age group of 30-39 years in both LGAs while 79.8% respondents in Ifedore and (70.8%) in Owo LGAs were married. 50% of the respondents and 39.2% had secondary education as their highest required level in Ifedore and Owo LGA, respectively. 78% of respondents in Ifedore LGA had good knowledge of Lassa fever as compared to 55.4% in Owo LGA and this was statistically significant (χ^2=41.481, p<0.05). However, 46% (Ifedore) and 44% (Owo) LGAs had high risk perception of Lassa fever, 53.9% (Ifedore) and 55.7% (Owo) LGAs had a low perceived susceptibility of Lassa fever infection. Sixty two percent (Ifedore) and 43% (Owo) LGAs had low perceived benefit of Lassa fever preventive practices, while 71 % (Ifedore) and 75% (Owo) LGAs had high perceived barrier towards Lassa fever preventive practices. 80% (Ifedore) and 56.5% (Owo) LGA had good preventive practices towards Lassa fever

Conclusion: This study concluded that there is high level awareness of Lassa fever in both LGAs and the preventive practices of Lassa fever was good in both LGAs. The determinants of good preventive practices were high level awareness, knowledge and education on Lassa fever disease.

Keywords: *Lassa fever, perceived risk, Health Belief Model, Ifedore, Owo, Nigeria, Knowledge gap most especially in Owo.*

Renforcer le diagnostic et les thèmes transversaux du réseau régional des laboratoires de référence : la stratégie OOAS développée pour l'achat d'équipements de laboratoire.

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Introduction : Lors d'études de faisabilité réalisées pour la mise en place du RRLR, de nombreuses faiblesses ont été identifiées concernant les « équipements » des laboratoires. La composante 1 du PRogramme Ouest-Africain des LABoratoires (PROALAB) financé par la KfW permet l'achat d'équipement.

Matériel et Méthodes : La composante 1 du PROALAB a été divisée pratiquement en 5 sous-composantes (SC) : 1. équipements, réactifs et consommables de laboratoire ; 2. équipements solaires ; 3. équipements informatiques ; 4. incinérateurs ; 5. rénovations. Les évaluations concernant la SC1 se sont focalisées autour de 5 thèmes transversaux : gestion de la qualité, maintenance, biosécurité/biosûreté, résistance antimicrobienne, transport des échantillons. Concernant les SC2 et 5, des experts ont réalisé des évaluations des besoins solaires et de rénovations. Les évaluations se font au cas par cas pour la SC3 et une stratégie au niveau urbain est en cours de développement pour appuyer la SC4.

Résultats : 25 laboratoires qui constituent actuellement le RRLR ont été évalués pour la SC1. 3.96M€ d'équipement ont été livré ; 9.0M€ sont en cours de commande et reflètent les requêtes faites en tenant compte des 5 thèmes transversaux. 19 laboratoires ont demandé des équipements solaires pour un montant total évalué à 1.23M€. Quatorze laboratoires ont requis des rénovations pour un coût évalué entre sept et 11M€. Un consultant a été recruté et le travail est en cours pour la mise en œuvre de procédures efficaces pour la SC4. Les équipements fournis sont accompagnés de programmes de formations et de maintenance.

Conclusion : L'OOAS a pu, grâce à des stratégies concertées et rationnelles développées en partenariat avec les bénéficiaires et d'autres partenaires techniques et financiers, identifier et fournir des équipements conformes aux besoins réels pour améliorer la surveillance épidémiologique, le diagnostic et les cinq thèmes transversaux ciblés.

Mots-clés : *Équipements de laboratoire, Maintenance, Surveillance épidémiologique*

Abstract ID: ELIC2025243
Poster 109

Psychiatric Symptoms in people with probable or confirmed Lassa Fever in a Military Hospital in North Central Nigeria: A case series

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Introduction: Lassa fever (LF) is a viral hemorrhagic fever endemic in West Africa, affecting an estimated 300,000 to 500,000 individuals annually. It is associated with high morbidity and a mortality rate of 15–65% among hospitalized patients. While 80% of infections are asymptomatic, symptomatic cases often begin with non-specific features resembling malaria. Early diagnosis and administration of intravenous Ribavirin can reduce mortality from 55% to 5%. However, limited treatment facilities and access to PCR testing facilities remains a major challenge. Neuropsychiatric manifestations in LF are underreported, and psychiatrists are rarely included in the management team. This case series describes the neuropsychiatric symptoms observed in LF patients at the 161 Nigerian Air Force Hospital (NAFH), Makurdi.

Methods: Patient files of individuals treated for Lassa fever were retrieved and reviewed for neuropsychiatric features. Four out of seven patients exhibited such symptoms. Relevant literature and national LF management guidelines were also reviewed to assess current coverage of psychiatric symptoms.

Results: Neuropsychiatric symptoms were documented in three of the four cases, including confusion, delirium, restlessness, low mood, irrational behavior, weeping spells, and auditory or olfactory hallucinations. Neurological features such as seizures and loss of consciousness were observed in two cases. All patients received early Ribavirin treatment. Involvement of mental health professionals during care led to improved clinical outcomes and cooperation. Prolonged hospital stays were noted in cases with psychiatric manifestations.

Conclusion: Neuropsychiatric symptoms in Lassa fever are clinically significant but often overlooked. Their recognition is crucial for effective management and infection control. There is a need to revise national treatment guidelines to include psychiatric features and to integrate mental health professionals into LF care teams. Further studies are recommended to explore the full spectrum and implications of psychiatric involvement in Lassa fever.

Keywords: *Lassa fever, neuropsychiatric symptoms, Ribavirin, mental health, Nigeria*

Abstract ID: ELIC2025461
Poster 110

Report of First Confirmed Lassa Fever Case in Bayelsa State, a non-endemic State in Nigeria – 2023

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Introduction: Lassa Fever, an endemic viral haemorrhagic fever (VHF) in Nigeria, is relatively unknown in Bayelsa State, in the Niger Delta region of Nigeria. This first confirmed Lassa fever case, a mortality, drew attention to the risk of Lassa fever outbreak emergence in non-endemic States like Bayelsa State, with potentially high mortality.

Methods: Records in the referring and referral hospitals were reviewed and case investigation done in the latter. Lassa fever PCR testing was done the National Reference Laboratory, Abuja. Counselling and testing of close contacts continued for three weeks to ensure safe burial and minimize transmission risk.

Results: This index case was a 47-year-old female civil servant residing in Yenagoa, referred with a high index of suspicion for VHF from a private hospital to the State referral hospital, where she died within hours of admission. She had a history of immunosuppression and travels to states having confirmed cases. Her Lassa fever PCR result returned positive four days later. All contacts tested negative.

Conclusion: The first confirmed Lassa fever case in Bayelsa, a non-endemic State in Nigeria, died with history of travel to endemic states and immunosuppression.

Keywords: *Lassa fever, index case, naïve*

Abstract ID: ELIC2025194
Poster 111

Contribution of epidemic treatment centers in the surveillance and response to Lassa virus hemorrhagic fever in Benin

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Introduction: Benin, located in the West African sub-region with a significant cross-border flow of populations, is exposed to the epidemic risk of Lassa hemorrhagic fever. During and after the Covid-19 pandemic, Benin set up epidemic treatment centers (ETCs) whose role was to manage cases in crisis situations. This study aimed to evaluate the contribution of ETCs to the epidemic response plan.

Methods: A situational analysis and a normative document review were carried out in 2024 and concerned the ETCs of the departments of Atlantique, Zou, Borgou and Atacora. Data was collected on activities, human and logistical resources, operational capacities, the laboratory technical platform.

Results: ETCs are specifically configured and equipped for the hospital management of cases with a specific circuit for suspected cases, probable cases and confirmed cases. Therapeutic protocols are applied according to the management guidelines. The health personnel working there are also trained in case management in epidemic situations. In the event of death, dignified and secure burials are ensured. ETCs also participate in biological surveillance thanks to a P4 laboratory for germ identification and genomic detection and thus support the national laboratory for viral hemorrhagic fevers. The data collected from patients makes it possible to strengthen epidemiological surveillance and to conduct studies on risk factors. ETCs are periodically used for the training of rapid response teams in collaboration with the public health emergency operations center, the epidemiological surveillance directorate and the CNLSTP. ETCs managers are involved in community awareness sessions on the prevention and surveillance of diseases with epidemic potential.

Conclusion: The threat of a health crisis linked to diseases with epidemic potential is permanent in an environment where the risk is high. In Benin, ETCs represent an important asset for preparation and response for a rapid, coordinated and adequate reaction.

Keywords: *Lassa fever – epidemic treatment centers - BENIN*

Abstract ID: ELIC2025473
Poster 112

Renforcer la surveillance épidémiologique par la mise en œuvre de Système Intégré de Transport des Echantillons Biologiques (SITEB) pour soutenir le Réseau Régional des Laboratoires de Référence (RRLR)

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Contexte : La surveillance efficace des maladies à potentiel épidémique en Afrique de l'Ouest repose sur des réseaux de laboratoires performants dotés de systèmes de transport d'échantillons fiables et intégrés. Pour répondre à ce défi, l'Organisation Ouest Africaine de la Santé (OOAS) a développé un modèle SITEB, inspiré de l'expérience réussie du Burkina Faso, dans le but de renforcer le RRLR de la CEDEAO.

Méthodes : L'implémentation du SITEB suit une méthodologie structurée en six étapes : (1) état des lieux et analyse des besoins, (2) rencontre de cadrage pour établir une feuille de route, (3) élaboration d'un plan opérationnel (PO), (4) organisation d'une table ronde multipartenaires, (5) exécution du PO, et (6) mise en place d'un fonctionnement de routine avec suivi-évaluation. Cette approche « One Health » intègre un mécanisme de cofinancement, une participation multisectorielle, des outils de suivi et une planification budgétisée. L'OOAS assure un accompagnement technique progressif favorisant l'appropriation nationale et le développement de capacités locales à travers des ateliers collaboratifs et la production d'outils standardisés. Deux pays ont été ciblé : le Niger et le Cap Vert.

Résultats : Au Niger, la mise en œuvre est en cours après élaboration d'un plan opérationnel, la réalisation d'une étude pilote et l'organisation d'une table ronde de mobilisation des ressources financière. Le Cap-Vert a réalisé une rencontre de cadrage pour élaborer la feuille de route et la mise en place d'un Groupe Technique de Travail. Il prépare des rencontres pour l'élaboration d'un Plan Opérationnel. D'autres pays (Côte d'Ivoire, Guinée-Bissau, Libéria, Sierra Leone, Togo, Bénin) sont en phase d'appropriation du modèle.

Conclusion : Le SITEB constitue une innovation stratégique majeure pour la surveillance épidémiologique régionale. Son déploiement vise à établir un système durable de transport d'échantillons pour une réponse rapide et efficace aux urgences de santé publique.

Mots clés : *Système Intégré, Transport d'échantillons, Surveillance épidémiologique, One Health*

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Poster 113

Etude de conception d'un projet de gestion intégrée des déchets biomédicaux de la ville de Bobo-Dioulasso selon le plan stratégique de l'OOAS

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Contexte : Face à une urbanisation rapide et à une forte croissance démographique, les villes africaines, comme Bobo-Dioulasso, subissent une pression accrue en matière de gestion des déchets biomédicaux. Leur élimination requiert des standards précis pour éviter les rejets polluants. L'OOAS a élaboré un Plan Stratégique Régional pour la gestion durable de ces déchets. Actuellement, la ville de Bobo-Dioulasso manque de capacités suffisantes et coordonnées pour un traitement adéquat menant à la présence de déchets biomédicaux dans les dépôts sauvages. L'absence de structure pour la collecte sécurisée aggrave la situation.

Méthodes : Cette étude propose une méthodologie d'évaluation pour définir les priorités d'un système intégré de traitement des déchets d'activités de soins à risques infectieux (DASRI) au niveau urbain. La démarche implique des entretiens avec un éventail d'acteurs clés : autorités étatiques, acteurs du secteur de la santé, et acteurs de la collecte et incinération. Une recherche documentaire sera menée sur les plans directeurs similaires, les technologies d'incinérateurs et la législation en vigueur, afin de diagnostiquer la situation, caractériser les déchets, cartographier les acteurs et tisser un réseau de partenaires, tout en proposant un modèle d'incinérateur adapté aux besoins locaux.

Résultats Attendus : La mission produira plusieurs livrables clés. Il s'agira notamment d'un projet de schéma pour une zone d'incinération et d'une schématisation du circuit d'élimination des déchets biomédicaux à Bobo-Dioulasso. Le livrable final consistera en une proposition de projet détaillée (feuille de route) pour la mise en œuvre d'une gestion intégrée des DASRI dans la ville, avec un potentiel de réplication dans d'autres villes ouest-africaines de taille similaire.

Conclusion : Cette mission représente un pas crucial vers l'établissement d'un système intégré et durable de gestion des déchets biomédicaux à Bobo-Dioulasso. En répondant à un besoin sanitaire et environnemental urgent, elle s'inscrit pleinement dans le Plan Stratégique Régional de l'OOAS.

Mots-clés : *gestion des déchets biologiques, gestion des déchets chimiques, DASRI, biosécurité, système de gestion de la qualité.*

Abstract ID: ELIC2025274
Poster 114

Correlation of RT PCR CT Values with the Outcomes of Lassa Fever Patients in Bauchi State, Nigeria.

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Introduction: Lassa fever is a viral hemorrhagic disease prevalent in West Africa, characterized by a broad range of clinical symptoms. The diagnostic gold standard remains Reverse Transcriptase Polymerase Chain Reaction (RT-PCR), with the cycle threshold (CT) value offering an indirect assessment of viral load. Despite its utility, the relationship between RT PCR CT values obtain from sub type lineage III and clinical outcomes has not been well studied. To determine the relationship between RT PCR CT values and clinical outcome among Lassa fever patients treated in Bauchi state, Nigeria.

Methods: A retrospective cohort analysis was carried out on patients with laboratory-confirmed Lassa fever admitted to ATBUTH between November 2024 to April 2025. Information on CT values at diagnosis and patient outcomes was collected. Statistical analysis was conducted using IBM SPSS (version 27), chi-square test and Pearson's correlation analysis were employed to explore the association between CT values and disease severity or clinical outcomes.

Results: The study found that lower RT-PCR CT values, indicating higher viral load, were significantly associated with poorer outcomes among Lassa fever patients in Bauchi State. In particular, the L Gene showed a strong correlation with mortality ($r = 0.204$, $p = 0.007$). In contrast, the GPC Gene showed a weaker, non-significant relationship with outcomes ($r = 0.138$, $p = 0.062$). These findings suggests that **CT values from the L gene may serve as a reliable prognostic marker** for predicting patient outcomes and guiding clinical management.

Conclusion: CT values obtained through RT-PCR could serve as valuable prognostic markers in the management of Lassa fever. Recognizing patients with low CT values early may facilitate effective triage and timely intervention. Further prospective research is needed to confirm these results and inform clinical practice.

Keywords: *Lassa fever, Viral Load, RT-PCR, Clinical Outcome, ATBUTH Bauchi*

Abstract ID: ELIC2025119
Poster 115

Detection Timeliness and Case Fatality Patterns of Lassa Fever in Bauchi State, Nigeria: A Descriptive Epidemiological Analysis, November 2024–February 2025

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Background: Early detection of Lassa fever is critical for improving treatment outcomes, yet diagnostic and surveillance delays remain a challenge in endemic settings. In 2024, the Nigeria Centre for Disease Control and Prevention (NCDC) reported 1,309 confirmed cases with a case fatality of 16.3%. This study assessed the timeliness of detection and associated case fatality patterns during a Lassa fever outbreak in Bauchi State, Nigeria, from November 2024 to February 2025.

Methods: A descriptive epidemiological approach was used, utilising both retrospective and prospective data analysis. Retrospective data were obtained from line lists of confirmed lassa fever cases recorded during the outbreak response from November 2024 – February 2025. Prospective data were gathered through active surveillance and field investigations conducted by outbreak response teams. We described the demographic distribution, time interval from symptom onset to laboratory confirmation, and patient outcomes. Detection timeliness was assessed using the first benchmark of the 7-1-7 (case detection within 7 days of symptom onset). Data were analysed using R software version 4.4.2, and spatial mapping and an epidemic curve were generated.

Results: A total of 161 confirmed cases were identified, with an overall case fatality rate (CFR) of 16.2%. Of these, 44% were detected within 7 days of symptom onset. Median detection delay was 8 days [IQR: 6–10]. The epidemic curve shows an initial rise in confirmed Lassa fever cases beginning in epidemiological week 46 of 2024, with a sustained increase peaking in week 2 of 2025, followed by a gradual decline through week 6 of 2025. Most cases (66%) occurred among individuals aged 20–59 years. The sex distribution was nearly equal, with a male-to-female ratio of 1.1:1. CFRs varied markedly by LGA, ranging from 4.1% to 66.7%, with a simple linear regression showing a statistically significant relationship between median detection delay and Case Fatality Rate (CFR) across Local Government Areas (β = 7.34, p = 0.0047, R^2 = 0.762)**.**

Conclusion: Suboptimal detection timeliness contributed to variations in Lassa fever mortality across Bauchi State. Strengthening early diagnostic capacity, routine monitoring of detection benchmarks, and reinforcing outbreak readiness at all levels of the health system are essential to improve outcomes in future epidemics.

Keywords: *Lassa fever, Detection timeliness, Case fatality rate, 7-1-7 framework, Nigeria*

Abstract ID: ELIC202533
Poster 117

Leveraging In-Silico Surveillance and AI-Powered Modelling of West African Arenavirus Genomic Data for Early Lassa Fever Outbreak Prediction

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Introduction: Lassa Fever continues to pose a significant public health burden in West Africa, particularly in regions such as Nigeria, Sierra Leone, Ghana, and Guinea-Bissau, where surveillance gap hinders timely epidemic response. This study proposes a digital innovation framework that integrates bioinformatics, artificial intelligent (AI), and Mobile health platforms to enhance outbreak predictions and epidemic intelligence.

Methods: Utilising curated genomic datasets from the NCBI Virus Database and analysing Lassa mammarenavirus isolates across human and rodent reservoirs. Key accessions included NC_004297(Josiah, Sierra Leone), MK345515.1(AV, Nigeria), MH979661.1(NL-1072H, Nigeria), MH979663.1(NL-1087H, Ghana), and MH979662.1(NL-1079H, Guinea Bisau). Using tools such as MAFFT for multiple sequence alignment and Nextstrain's augur and auspice pipelines, we mapped phylogenetic relationship and inferred regional viral evolution patterns. To support predictive analytics, we trained machine learning models, including Random Forest and Long Short-Term Memory (LSTM) algorithms, using genomic features and outbreak meta data. The pipeline was implemented in python, leveraging libraries such as scikit-learn, TensorFlow, and Pandas.

Result: Results showed that high-risk genomic signatures and emerging variants could be link to geographic clusters ahead of confirm outbreak reports.

Conclusion: Proposing a regionally integrated West African Lassa Virus Gene Bank Interface to unify in in-silicon surveillance with mobile case reporting platforms, enabling frontline health actors to receive early alerts and deploy counter measures efficiently. This AI-enabled genomic surveillance model demonstrates the viability of low-cost, scalable epidemic control in resources-limited settings and offers a transferable framework for emerging infectious disease across Africa.

Keywords: *Lassa Fever, AI Surveillance, Mobile Health, Pipelines, Genomic Surveillance, Machine Learning, In-silico Modelling, Bioinformatics, West Africa.*

A Systematic Review and Meta-Analysis of Machine Learning-Based Early Warning Systems for Lassa Fever Outbreaks in West Africa.

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Introduction: Lassa fever is still a big public health problem in West Africa, and outbreaks happen again and again in many countries in the region. This systematic review and meta-analysis looked at how well artificial intelligence and machine learning can help West African countries keep an eye on Lassa fever and predict outbreaks.

Methods: We searched the PubMed, Scopus, and African Journals Online databases (2015-2025) in a systematic way for studies that used machine learning algorithms to track Lassa fever. We used random-effects models to do a meta-analysis on 24 eligible studies to see how well different AI models could predict outcomes.

Results: The analysis looked at 24 studies from Nigeria (12), Sierra Leone (5), Liberia (4), and three other West African countries. For finding outbreaks, random forest algorithms had the best predictive accuracy (pooled AUC = 0.89, 95% Cl: 0.85-0.93), followed by deep learning models (pooled AUC = 0.85, 95% Cl: 0.81-0.89). Adding climate data, rodent surveillance, and human case reports to the model made it work 27% better (p< 0.001). Compared to traditional surveillance methods, real-time data processing systems cut the time it took to find an outbreak by 8.3 days (95% Cl: 6.2-10.4).

Conclusion: Surveillance systems that use machine learning are showing good results in finding and predicting Lassa fever outbreaks in West Africa. Combining data from different sources and using automated analysis makes it much easier to find outbreaks quickly. These results support the use of AI-powered surveillance systems to improve the ability of regions to prepare for and respond to Lassa fever outbreaks. Future studies should concentrate on making data collection methods more consistent and building stronger cross-border surveillance networks.

Keywords: *Lassa fever, artificial intelligence, machine learning, surveillance, West Africa, systematic review, and meta-analysis*

Abstract ID: ELIC202530
Poster 119

Assessment of Cutting-Edge Machine Learning Models to Significantly Enhance Predictions of Lassa Fever Outbreaks using whole genome sequncing

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Introduction: Lassa fever is a serious and often debilitating viral hemorrhagic illness endemic to some areas of West Africa, presenting a significant public health challenge. This disease is primarily transmitted through exposure to the excreta of infected rodents, highlighting the need for local communities to be aware of potential risks. Timely detection and accurate diagnosis are vital for mitigating mortality rates and effectively controlling outbreaks, as any delays can lead to severe health consequences. In recent years, machine learning (ML) has emerged as a promising approach to enhancing disease prediction and improving diagnostic accuracy in various medical conditions.

Methods: This study rigorously evaluates the performance of several ML models—Logistic Regression, K-Nearest Neighbors, Support Vector Machine, and Naïve Bayes—in predicting Lassa fever infections. The models were meticulously trained and tested using a comprehensive dataset that included diverse clinical and demographic features from patients exhibiting symptoms. Key evaluation metrics were adopted to assess the efficacy of each model, including accuracy, precision, recall (sensitivity), F1-score, macro average, and weighted average.

Results: Among these models, the Support Vector Machine (SVM) delivered outstanding performance, achieving an impressive 95% accuracy, 93% precision, 97% recall, and 95% F1-score. These remarkable results emphasize the SVM model's potential as an effective diagnostic tool for Lassa fever, providing an essential resource for healthcare providers in resource-limited settings.

Conclusion: This study's findings demonstrate machine learning's effectiveness in addressing public health challenges and lay the groundwork for future research. It is crucial to explore the integration of more diverse datasets and to include additional clinical parameters, which could further refine and enhance the accuracy of predictive models, ultimately leading to better health outcomes for communities affected by Lassa fever.

Keywords: *Lassa Fever, Machine Learning, Support Vector Machine (SVM), Diagnostic Accuracy, Performance Evaluation.*

Enhancing Outbreak Communication via Digital Platforms: A Social Media Analytics Approach

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Introduction: The COVID-19 pandemic highlighted the transformative role of digital platforms in public health communication, presenting both opportunities and challenges. Effective outbreak communication requires timely dissemination of information, real-time monitoring of public sentiment, and mitigation of misinformation to improve response coordination.

Methods: This study conducted a comprehensive literature review and methodological analysis, synthesizing empirical data from past outbreaks including COVID-19, Ebola, and Zika. Techniques such as social media analytics, social listening, and sentiment analysis were examined to assess their utility in enhancing risk communication strategies and community engagement.

Results: Findings indicate that integrating social media analytics into outbreak communication enables adaptive, data-driven approaches that improve information transparency and public trust. Key benefits include real-time monitoring of public sentiment and identification of misinformation trends. Challenges identified include data quality concerns, ethical considerations, and the need for culturally sensitive frameworks to ensure inclusivity.

Conclusion: A multidisciplinary and culturally adaptive communication framework that leverages digital tools can significantly enhance outbreak response efficacy. Emphasizing stakeholder engagement and ethical use of data promotes resilience and preparedness for future health crises, reinforcing the vital role of digital platforms in global health communication.

Keywords: *Outbreak Communication, Social Media Analytics, Digital Risk Communication, Community Engagement, Public Health, Misinformation, Sentiment Analysis*

Enhancing Lassa Fever Health Literacy Through AI: Development and Evaluation of a Retrieval-Augmented Generation Chatbot for Public Health Education

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Background: Lassa fever is an acute viral hemorrhagic illness endemic to West Africa, with an estimated 100,000 to 300,000 infections annually and approximately 5,000 deaths. Despite its public health significance, widespread misinformation, limited health literacy, and poor access to reliable educational resources hinder effective prevention and control. In this context, artificial intelligence (AI)-powered chatbots offer a novel approach to disseminating accurate, accessible, and source-attributed health information. This study aimed to develop and evaluate a custom retrieval-augmented generation (RAG)-based AI chatbot designed to improve health literacy on Lassa fever.

Methods: This was a two-phase evaluation study conducted in a virtual setting. A RAG-based chatbot was developed using curated and trusted Lassa fever guidelines from the World Health Organization (WHO), Nigeria Centre for Disease Control (NCDC), and peer-reviewed literature. The evaluation involved: Expert Assessment: Forty-four predefined questions were submitted to the chatbot. Infectious disease specialists rated responses for appropriateness (appropriate/partly appropriate/inappropriate) and source attribution (matched/partly matched/unmatched/general knowledge). **Simulated Consultations:** Sixteen patient-like queries were tested to assess real-world applicability and response quality.

Results: In the expert assessment, 73% (32/44) of responses cited reference documents, of which 94% (30/32) were rated fully appropriate. Among general knowledge responses (27%, 12/44), only one (8%) was deemed inappropriate. In the simulated consultations, 100% (16/16) of responses were rated fully appropriate and correctly sourced.

Conclusion: The custom AI chatbot demonstrated high accuracy and contextual relevance in delivering Lassa fever information, with strong performance in both expert and simulated evaluations. These findings support its utility as a scalable tool for public health education. Broader implementation and expansion of reference sources are recommended to further reduce reliance on general knowledge and enhance disease-specific literacy.

Keywords: Lassa fever, chatbot, Retrieval-Augmented Generation Chatbot, public health, artificial intelligence

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Poster 122

Characterizing forecasting risk communication during the COVID-19 pandemic: a quantitative content analysis of news reports

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Introduction: Risk communication remains an essential component of public health emergency management to improve population adherence to public health and social measures, resulting in better response and health outcomes. This study aimed to characterize forecasting risk communication during the COVID-19 pandemic.

Methods: We performed a deductive content analysis of 12 high-readership news media online databases selected across the six world regions.

Results: The global prevalence of COVID-19 forecasting risk communication news reporting was 50% (n = 6 regions). COVID-19 forecasting risk communication news availability was highest in the American region (69.2%), followed by the Australian region (23.1%), with zero per cent in Africa, the Middle East, and Asia. The rates for COVID-19 forecasting risk communication news simplicity and completeness were highest in the American and European regions (100% each), and lowest in the Australian region (66.7%).

Conclusion: Our findings suggest the need for improved forecasting risk communication to enhance the adoption of control measures by populations and communities in future public health emergencies.

Keywords: *COVID-19, forecasting, risk communication, news reports, public health emergencies.*

Abstract ID: ELIC2025132
Poster 123

Inhibition of Inosine Monophosphate dehydrogenase in Lassa fever management by Phenolics from (*Telfairia occidentalis*) an edible plant in Nigeria using computational analysis

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Introduction: Lassa fever is an acute viral hemorrhagic fever caused by a single stranded RNA virus known as Lassa virus a member of the Arenaviridae family and it poses a significant health threat with increasing mortality rate and paucity of concrete evidence on the efficacy of the only available drug, Ribavirin.

Methods: This study employed a comprehensive computational approach, including molecular docking, MMGBSA (Molecular Mechanics Generalized Born Surface Area), induced fit docking, and pharmacokinetic analysis, to identify phenolic compounds of *Telfairia occidentalis* leaves to target Inosine Monophosphate dehydreognase (IMPDH) protein for the development of potential therapies for Lassa fever. The crystallographic structure of Inosine Monophosphate Dehydrogenase (PDB ID: 1JR1) for Homo sapiens was retrieved from protein database repository (www.rcsb.org), the monomeric (chain A) protein was prepared using the protein preparation wizard of Schrodinger suit (2021 v2). The receptor grid generation tool of the software was used to generate a grid coordinate (1JR1: x = 66.56, y = 81.89, and z = 84.83) at the binding domain of the co crystalized ligand (phenolic acid).

Results: Six (6) promising compounds were identified from phenolic compounds with better binding affinity with IMPDH ranging from 10.375 to 6.902 (kcal/mol) compared to Ribavirin, a standard drug (6.838 kcal/mol). The six compounds formed a stable complex with IMPDH protein and their predicted Half maximum inhibitory cocentration (IC50) ranged from 5.035 to 4.597, when compared with the standard drug Ribavirin with 3.404 value indicating the lead compounds' bioactivity.

Conclusion: The lead compounds passed Lipinski's rule of five and have good pharmacokinetic properties. This study revealed the inhibitory potential of the compounds (Rutin, Isoquercetin, Myricetin, Luteolin, Quercetin and Catechin identified from phenolic compounds that can be exploited for the development of therapies for Lassa fever and other viral infections.

Keyword: *IMPDH; Lassa Fever; Computational; Therapy; Ribavirin*

Abstract ID: ELIC2025155
Poster 124

Inferring Underreporting in Lassa Fever Surveillance in Nigeria via Simulation-Based Modeling with Climatic Covariates

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Introduction: Lassa fever remains a persistent public health challenge in West Africa, particularly in Nigeria, where outbreaks recur annually with varying intensity. Effective control and timely response depend on accurate epidemiological modeling, yet the reliability of reported case data is hindered by substantial under-reporting and inconsistent surveillance. Environmental factors such as rainfall, temperature, and vegetation strongly influence both disease transmission and the likelihood of detection, yet their role in shaping reporting patterns remains underexplored. Bridging this gap is critical for interpreting observed trends and guiding targeted public health interventions.

Methods: We propose a Bayesian simulation-based inference (SBI) framework that extends the classical SEIR (Susceptible–Exposed–Infectious–Recovered) model with a covariate-conditioned, time-varying reporting function. This function is parameterized by a neural network that maps weekly environmental covariates including rainfall, temperature, and vegetation index (NDVI) to the probability of reported cases, thereby capturing seasonal and regional variation in surveillance performance. To estimate the joint posterior over epidemiological parameters and reporting dynamics, we use Sequential Neural Posterior Estimation (SNPE) on historical Lassa fever data from Nigeria Center for Disease Control.

Results: Our method enables likelihood-free inference in the presence of latent, noisy, and partially observed data. Posterior predictive checks show strong agreement between observed and simulated case trajectories. Inferred reporting functions reveal geographic and temporal patterns of under-reporting.

Conclusion: By integrating climatic covariates into a neural network–parameterized reporting function within a Bayesian simulation-based framework, our approach disentangles true transmission dynamics from reporting noise. This allows us to infer spatiotemporal patterns of under-reporting and identify regions where surveillance is likely weakest. These findings highlight the dual value of environmental data in informing both transmission modeling and surveillance evaluation, with direct implications for improving epidemic forecasting, resource prioritization, and policy response to Lassa fever in Nigeria.

Keywords: *Lassa fever, Bayesian inference, under-reporting, simulation-based modeling, SNPE, Forecas*

Abstract ID: ELIC2025196
Poster 125

Community knowledge, attitudes and practices towards Lassa hemorrhagic fever in Natitingou, northern Benin

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Introduction: Lassa hemorrhagic fever remains a concern in Benin. The risk of transmission is primarily related to population behavioral factors. This study aimed to assess KAP in a community in northern Benin.

Methods: A cross-sectional study was conducted between January and March 2025 in Natitingou in the Atacora department and involved 309 adult subjects. Sociodemographic and environmental data, as well as knowledge, attitudes, and practices, were collected. A score was calculated for each component. Factors associated with a good score were analyzed using a logistic regression model.

Results: A total of 66.5% of the surveyed subjects had good knowledge, 52.9% good attitudes and 43.7% good practices. Socioeconomic level (AOR = 1.45 [1.22-3.67]) and education level (AOR = 1.74 [1.12-2.46]) were associated with good knowledge. Farmers (AOR = 2.59 [1.93-4.08]) and married people (AOR = 1.25 [1.11-2.53]) had a higher probability of having a bad attitude. Bad practices were related to age (AOR = 2.01 [1.52-3.86]), household size ≥ 7 (AOR = 1.81 [1.14-3.99]) and farmer occupation (AOR = 2.40 [1.30-2.91]).

Conclusion: Some lifestyle habits among populations still favor the transmission of Lassa fever, despite good knowledge of the disease. It is useful to engage decision-makers and community leaders to achieve the goal of behavior change.

Keywords: *Lassa fever – Community KAP – Northern BENIN*

Abstract ID: ELIC2025378
Poster 126

Lassa Fever Misinformation: A Multi-State Case Study of Lagos, Kano, Niger, Cross River and Ebonyi States

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Introduction: Lassa fever poses a significant threat to Nigeria's public health, with 100 fatalities and over 2,700 suspected cases across 13 states by March 2025. Despite advancements in surveillance and response mechanisms, widespread misinformation is still a major hurdle. It undermines public health efforts and increases distrust in standard healthcare. This study sought to answer the research question: *What is the predominant misinformation about Lassa fever across the selected states in Nigeria, and how do these shape public health behaviours?* The aim of this study was to determine the predominant Lassa fever misinformation in Lagos, Kano, Niger, Borno, Cross river, and Ebonyi States in Nigeria.

Methods: Cross-sectional study integrated rumour surveillance across six Lassa fever endemic Nigerian states (Lagos, Kano, Niger, Borno, Cross River, Ebonyi). Over two months, structured questionnaires were administered to community members, combining standardised knowledge items with an open-ended question on circulating rumours. Content analysis was conducted from narrative responses (n=146) using Nvivo 14, to examine the frequency of misinformation, associations between rumour clusters and geographical location, and high-impact false narratives. This approach provided both quantitative insight into rumour spread and qualitative understanding of local misconceptions.

Results: Cross River, Ebonyi and Niger States revealed widespread supernatural causation theories like witchcraft and spiritual punishment. Government conspiracy theories appeared significant in Kano and Niger States. Prevention and treatment of misconceptions, including reliance on traditional medicine and spiritual interventions, were identified in all states. Healthcare avoidance due to misinformation was also reported across all states, but Ebonyi State recorded the highest.

Conclusion: Lassa fever misinformation showed regional variations, shaped by cultural and educational factors. Debunking supernatural myths and building trust is essential. Targeted risk communication must address misinformation urgently to improve trust in healthcare and health-seeking behaviours. Involving religious and traditional leaders is vital for effective misinformation management.

Keywords: *Misinformation, Nigeria, Lassa Fever, Myths, Beliefs*

Abstract ID: ELIC2025216
Poster 127

Strengthening Epidemic Preparedness and Community Resilience Through Trusted Communication: An Assessment of Lassa Fever Risk Messaging in Bauchi State, Nigeria

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Introduction: Effective communication is critical for behavior change, public health preparedness and community resilience in epidemic-prone contexts. This study evaluated the performance of communication channels and trust dynamics in Lassa Fever (LF) Risk Communication and Community Engagement (RCCE) interventions in Bauchi State, Nigeria, from 2021 to 2023.

Methods: Using a quasi-experimental design, structured household interviews were conducted with 1,544 adults across intervention LGAs (Bauchi and Toro) and a control LGA (Dambam). Analysis done using Stata, version 17 assessed exposure to LF messaging, channel preference and trust, and associations between trusted sources and knowledge or behavior outcomes.

Results: Radio was the most commonly cited source of LF information across all LGAs. In intervention areas, access to information was more diverse, with community volunteers (38.5% Bauchi; 32.2% Toro) and healthcare workers (50%) cited more frequently than in the control area (21.1%). Health professionals were the most trusted sources of accurate information (70–80% across LGAs), while trust in government sources and journalists was moderate (30–45%). Intervention LGAs showed a stronger alignment between trusted channels and correct knowledge of LF symptoms and preventive practices. However, preference did not always translate to action, indicating the need for strategies that close the gap between awareness and behavior. Respondents preferred receiving information from multiple, reinforcing sources, especially those embedded in social and religious structures and fluent in local languages.

Conclusion: Multichannel communication strategies that blend mass media with trusted, community-based messengers significantly improve trust, health literacy, and uptake of protective behaviors. Embedding trusted communication actors within RCCE frameworks strengthens epidemic preparedness and fosters community resilience. Sustained investment in diversified, culturally relevant communication approaches is essential for durable public health outcomes in high-risk settings.

Keywords: *Lassa Fever, Risk Communication, Trusted Sources, Health Literacy, Epidemic Preparedness, RCCE, Community Resilience, Nigeria*

Abstract ID: ELIC202597
Poster 128

Knowledge, attitude, and practice of biosafety and infectious waste management among the laboratory workers at the ncdc national reference laboratory, abuja, nigeria.

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Introduction: Biosafety (BS) and safe infectious waste management (IWM) knowledge are crucial in safeguarding the laboratory and its personnel as well as preventing the release of biological waste into the environment. At the National Reference Laboratory, infectious waste (both solid and liquid) is generated from laboratories handling Lassa fever, Mpox, diphtheria, pertussis, cholera, cerebrospinal meningitis, measles, rubella, yellow fever, HIV/hepatitis, Covid-19, influenza, etc. Biosafety and infectious waste management practices are influenced by personnel's attitude; hence, the need for status assessment to enable application of interventions that are suitable for the system.

Methods: The study was conducted from January to March 2025 using a cross- sectional descriptive study design. The entire population (n=105) of technical and non- technical laboratory workers was sampled. A structured questionnaire was used to collect data. SPSS version 20.0 was used for data analysis.

Results: A total of 80 respondents participated in the study, with 48 males (60%) and 32 females (40%). Among the respondents, 74 (92.5%) received initial orientation training on biosafety and infectious waste management. Additionally, 76.3% demonstrated an understanding of biosafety, while 63 (78.8%) strongly agreed that proper infectious waste management plays a critical role in reducing environmental and health risks. Regarding self-assessed confidence in BS and IWM knowledge, 38.8% of respondents reported to be strongly confident of their BS and IWM knowledge, while 50% reported to have a decent confidence level of their knowledge. Overall, attitudes towards biosafety and infectious waste management were predominantly positive, and observed practices partially conformed with standard operating procedures

Conclusion: Significant knowledge exists among laboratory workers, and attitudes are mostly positive; however, some gaps still exist. Notably, informed knowledge will need to be fully translated into safe practices; as such, regular training and retraining of workers on biosafety and infectious waste management are highly recommended.

Keywords: *Biosafety, Infectious Waste Managements, Knowledge, Attitudes, Practice, Laboratory workers, NCDC National Reference Laboratory.*

Abstract ID: ELIC202569
Poster 129

Factors associated with COVID-19 vaccine compliance and reasons for hesitancy among adults: a cross-sectional survey, Benin

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Introduction: Immunization is one of the most effective public health measures for preventing cases and deaths related to infectious diseases. However, vaccine hesitancy and non-compliance have recently been observed worldwide, particularly in Africa, especially during the COVID-19 emergency. The study aimed to investigate the factors associated with COVID-19 vaccine compliance and reasons of hesitancy in Cotonou, Benin.

Methods: A cross-sectional survey was carried out at Cotonou in December 2022. Respondents were at least 18 years of age. A three-stage stratified random sampling method was used. Vaccination coverage and reasons of hesitancy were assessed. The factors associated with COVID-19 vaccination compliance were identified by using a binary logistic regression.

Results: Among the 815 respondents, 53% were vaccinated. The most cited reasons for non-compliance were "fear adverse events" (42.4%), the "rumours" (37.2%), and the "lack of knowledge or confidence in the health system" (10.4%). The COVID-19 vaccination compliance demonstrated spatial heterogeneity with rates increasing from the youngest to the oldest age groups (p=0.0005), from the lowest to the highest education levels (p=0.0021), with a good habit of accessing health care and vaccination, the perception of the risk of contracting the COVID-19 (p=0.0271), and decreased with the fear of adverse effects of the vaccines (p< 0.0001).

Conclusion: Government and donors should invest to debunk misinformation and disinformation related to all vaccines in Africa in other to ensure effective routine vaccination and outbreak response.

Keywords: *Vaccination, Compliance, Hesitancy, Infodemic, COVID-19, Benin*

Abstract ID: ELIC2025227
Poster 130

Determinants of the 2025 Lassa Fever Outbreak among residents in selected Local Government Areas in Taraba State Nigeria. A Mixed Methods Epidemiological Investigation

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Introduction: The 2025 Lassa fever (LF) outbreak in Taraba State, Nigeria, was exponential with high fatalities. This study was aimed at identifying the determinants of LF transmission among residents in Taraba State.

Methods: A cross-sectional study was conducted in eight randomly selected local government areas. A validated structured questionnaire was used to gather quantitative data from 238 respondents, 26 of whom were LF patients chosen by simple random sampling. Two focused group discussions (LF cases and non-cases) were conveniently scheduled, and determinants of the infection transmission were inquired about. The qualitative data was examined using thematic analysis.

Results: The study observed a higher presence of rats in households (212, [89%]) compared with absence of rats in the homes (26, [11%]) (p = 0.748). Other environmental factors that were found to be higher than the absence of these factors included the use of poison to kill the rats (215, [90%]), open dumping of waste (144, [61%]), sun-drying food products 4 (90%), and daily cleaning of the environment (216, [91%]) (p > 0.05). The percentage of those with refuse bins in their homes was greater (185, [78%]) compared to those without it (p=0.005). The behavioural practices of handwashing before eating (224, [94%]) and storing food in the homes (159, [67%]) were more practiced (p > 0.05). The habit of leaving food uncovered (127, [53%]) and use of sack bags to store food (159 [67%]) was more common (p < 0.05). The interviews conducted pointed out varied means of infection transmission among the residents.

Conclusion: This study calls for improved environmental sanitation and good food storage practices to stem the tide of the infection in Taraba State, Nigeria. Concerted efforts should be made to understand more drivers and barriers to the infection in Nigeria.

Keywords: *Lassa Fever, Determinants, Residents, Taraba, Nigeria*

Abstract ID: ELIC202567
Poster 131

Awareness and acceptability of Lassa fever preventive measures among residents of endemic communities in Nigeria: a cross-sectional assessment

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Introduction: Lassa fever spreads mainly through contact with food or household items that are contaminated with excreta of rodents, or through human-to-human transmission. Despite its severe health implications, public awareness of Lassa fever prevention strategies is limited, especially in underserved communities. Hence, this study aims to evaluate the level of awareness of the preventive measures for Lassa fever among residents of selected endemic communities as well as their willingness to adopt such measures.

Methods: Employing a cross-sectional design, we used an 18-item structured and self-administered questionnaire to collect data from two Lassa fever-endemic communities in Nigeria: Amachara, Ebonyi State, and Ugbe, Ondo State. Data was collected from 334 participants (182 from Amachara and 152 from Ugbe) from March to April, 2024. Inferential and descriptive analyses were done using IBM SPSS 27.0, where significance was set as $p < 0.05$.

Results: More than half of the respondents were females (n = 242; 72.45%) and were within the age of 35-44 years (n = 114, 34.1%). Of the 334 respondents, 318 (95.21%) had heard of Lassa fever. While 257 (76.95%) respondents were aware of at least one preventive measure, only 68 (20.36%) reported practicing rodent-proof food storage at home. Most respondents (n = 308; 92.2%) were willing to adopt preventive measures such as improving waste disposal practices and household sanitation. Also, having a higher educational qualification ($p = 0.001$) and having a prior contact with a health education campaign ($p = 0.003$) were associated with increased willingness to adopt Lassa fever preventive measures.

Conclusion: The level of awareness of Lassa fever was high in the two communities, whereas the practice of its preventive measures is low. Acceptability of these preventive measures was also high. Targeted educational intervention and improved community sanitation infrastructure are needed to enhance the practice of preventive measures.

Keywords: Lassa fever; Preventive measures; Endemic communities; Awareness and acceptability

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Poster 132

Situational Analysis of Community Health Systems in West Africa: Imperative to Integrate Social Determinants of Health

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I**ntroduction**: Recent global economic crises, pandemics, and climate change have exposed weaknesses in health systems, particularly at the community level. In response, the West African Health Organisation (WAHO) conducted a regional situational analysis to inform updates to its community health strategy, emphasizing social determinants of health (SDH), multisectoral collaboration, and the "Health in All Policies" (HiAP) approach.

Methods: A cross-sectional study was carried out in 13 ECOWAS countries using a standardized tool developed by WAHO. Data were collected from September to November 2023 through self-administered questionnaires, document reviews, and stakeholder interviews. Thematic content analysis was used to identify key trends.

Results: All countries reported using data-driven approaches, but few had community-specific HRH systems or fully adopted MEAL frameworks. Two CHW categories were common—professionals and volunteers—though core competencies were often misaligned with SDH. Financing remained inconsistent, and HiAP strategies lacked full implementation.

Conclusion: Significant gaps exist in institutional frameworks, financing, and workforce capacity across West Africa. An integrated, SDH-focused model with strengthened CHW systems and multisectoral policies is critical to achieving equitable and effective community health outcomes.

Keywords: *Social determinants of health, Primary Health Care, Community Health Systems, West Africa, Health Policy*

Abstract ID: ELIC202595
Poster 133

Community-Level Prevention Measures against Lassa Fever in Benue State, Nigeria.

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Background: Lassa fever is a viral hemorrhagic fever endemic in West Africa with a sporadic outbreak pattern in Nigeria. Prevention at the community level remains deficient despite public health interventions due to gaps in knowledge, attitudes, and implementation of preventive measures. This study examined the knowledge, attitudes, and preventive practices regarding Lassa fever as well as barriers to effective implementation among community members in Benue State Southeastern Nigeria.

Methods: A cross-sectional survey was conducted among 1,088 participants who were selected through a multistage sampling technique. Data were collected using a semi-structured interviewer administered questionnaire. A 24-point knowledge scale scored respondents' knowledge as poor (0-8), fair (9-12), and good (13-24). Attitude was scored on a 44-point scale, scored as negative attitude (0-21) and positive attitude (22-44). Data were analysed using SPSS. Chi-square tests was employed to test for associations at 5% level of significance.

Results: Mean age of respondents was 34.6 ± 12.4 years. Of the respondents, 46.5% indicated they knew Lassa fever, but only 27.7% correctly named the disease as a viral hemorrhagic fever. Preventive practices such as rodent control and food storage were carried out irregularly, with 50.2% never undertaking preventive activities. Significant factors identified as barriers to prevention were financial limitations, access barriers to healthcare, cultural beliefs, and poor waste management $p < 0.05$. Knowledge had a strong relationship with preventive behavior ($p < 0.001$) and barriers to implementation ($p < 0.001$).

Conclusion: This study shows the knowledge gaps in the application of Lassa fever preventive interventions. There is a need for increased public health education, enhanced healthcare facilities, and culturally adapted interventions to support and sustain effective prevention of Lassa fever.

Keywords: *Lassa fever, community prevention, knowledge, attitudes, Benue State, Nigeria.*

Molecular Characterization of Lassa Virus (Glycoprotein Complex Gene) in Febrile Patients in Plateau State, Nigeria

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Background: The prevalence of Lassa fever has continued to rise over the years, with over 33 years of national outbreaks and more than 18 years of Lassa fever outbreaks in Plateau State since the detection of the index case in Nigeria in 1969. Plateau state is one of the states with significant increased number of Lassa fever outbreaks in the country. This study aimed at characterization of the molecular phenotypes of Lassa virus in febrile patients.

Methods: A cross-sectional study was carried out. Using simple random sampling technique, a total of 240 blood samples were collected from febrile patients (≥38◦C) in the selected Hospitals within the three zones in Plateau State. Structured questionnaires were administered to the Patients at the point of sample collection to obtained information on various potential risk factors associated with Lassa virus infection. One-step conventional RT-PCR was used to screen the samples. Positive PCR products were sequenced using Sanger sequencing platform. The data were analysed using SPSS version 20.0, FinchTV software version 1.4.0 and MEGA X.

Results: Of the 240 febrile patients, 9 (3.75%) had Lassa virus; 8 (10.0%) were from the Plateau North zone, 1(1.2%) from the Plateau South, and 0(0%) from the Plateau Central. All the eight (8) sequences that passed quality check in this study clustered phylogenetically with Lassa virus strains under lineage III previously known to circulate around the Northern Nigeria.

Conclusion: This study highlights the presence of Lassa fever among febrile patients who might not typically be screened for the disease, as they do not meet the standard case definition for suspected Lassa fever. This shows that, routine diagnosis for Lassa fever is urgently needed in areas with high Lassa fever transmission rates. Surveillance for Lassa fever among febrile Patients in Plateau State should be a priority.

K**eywords:** *lineage III, Lassa fever, febrile illness*

Abstract ID: ELIC2025460
Poster 135

Utilizing local solutions through active community engagement to strengthen Lassa fever prevention and control in Ondo state, Nigeria, July 2024

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Background: Lassa fever (LF) is endemic in Ondo state, Nigeria with yearly outbreaks reported. A novel approach called Local Innovations Scaled through Enterprise Networks (LISTEN) was piloted in 2 high-burden Local Government Areas (LGAs) in Ondo State to optimize control efforts. LISTEN is a co-creation iterative strategy utilizing a human centered design to identify challenges and solutions that are data-driven through continuous data review and leveraging Communities of Practice (CoP) for implementation and sustainability.

Methods: Data was collected through a semi-structured questionnaire for community needs assessment, key informant interviews, and focus group discussions with 71 respondents, including politicians, community leaders, and healthcare workers in Akure-South and Owo LGAs. Manual thematic analysis identified challenges in LF prevention, focusing on healthcare access, environmental conditions, and social behaviors. Data was securely archived on a shared drive, accessible only to the project team.

Results: Insights include poor healthcare access attributed to long distances to testing centers and high transportation costs, misconceptions and traditional beliefs hindering early medical intervention, and unhygienic food storage practices. Others were the presence of unkempt bushes, open refuse dumps in the community, and poor hygiene in markets and residential areas, which are responsible for rat infestations and vehicles for disease spread. Social stigma against LF survivors was a major factor that complicates disease management.

Conclusion: The study demonstrated that community engagement and collaborative public health efforts are critical to controlling LF outbreaks. Immediate actions include improved waste management, raising awareness to reduce stigma, and promoting good food hygiene to prevent future outbreaks in Ondo State. These insights provide a roadmap for leveraging local LF control resources and expand efforts to other endemic regions.

Keywords: *Lassa Fever, Human Centred Design, Community Engagement, Prevention, Control*

Abstract ID: ELIC2025237
Poster 136

Retaining Participants in a Prospective Epidemiological Study Involving Blood Draws Through Sustained Engagement: Lessons from Enable 1.0 Incidence Study on Lassa Fever Infection in Abakaliki, South-East Nigeria

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BACKGROUND: Participant retention is crucial in longitudinal epidemiological studies involving repeated blood draws. The Enable 1.0 Incidence Study on Lassa Fever at Alex Ekwueme Federal University Teaching Hospital Abakaliki explored community engagement strategies to sustain retention in a high-risk, Lassa-endemic region of Nigeria. Despite initial misconceptions surrounding blood use, the study achieved 90.5% retention rate over 24 months. This study evaluated the effectiveness of community engagement strategies in retaining participants in a prospective study involving repeated blood draws.

METHODS: Enable 1.0 was a multisite, prospective cohort study (2020-2023) that tracked Lassa virus seroconversion among 1,000 healthy participants from 10 communities in three Local Government Areas of Ebonyi State, Nigeria. Community Liaison Officers, village guides, and study teams sustained participants engagement through biweekly home visits and sensitization meetings. Data on participant reception, retention threats, and engagement strategies were collected from 713 participants using a semi-structured questionnaire via Google Forms and analyzed with IBM-SPSS Statistics Version-25.

RESULTS: 91.4% of participants reported on were retained while 8.6% did not complete the study. Reported retention threats (14.3%) included inadequate compensation (7.3%), family pressure (6.7%), and fear of blood rituals (5.2%). Non-completion reasons included relocation (3.2%), refusal (2.1%), family opposition (0.8%), and death (0.8%). Effective retention strategies included engaging village guides (61.6%), financial support (41.1%), family members' encouragement (21.3%), and engaging traditional leaders (21.2%). Despite rumours of blood rituals, sustained community engagement, education, sensitization on the study's objectives, along with consistent reassurance from study team, helped dispel misinformation. As a result, 86.7% of participants remained warmly receptive and cooperative throughout the study.

CONCLUSION: Enable 1.0 demonstrated that culturally sensitive community engagement and proactive rumour management are effective for maintaining high retention in longitudinal studies. These findings provide valuable guidance for future studies aiming to mitigate sociocultural barriers and sustain community and participant trust.

KEYWORDS: *Lassa fever, participant retention, epidemiological study, community engagement and sensitization, blood draw, Nigeria*

Combating Infodemics: Evaluating the Role of Accurate Health Reporting During Lassa Fever Outbreaks in West Africa

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Introduction: Lassa Fever is endemic in West Africa, with an estimated 100,000–300,000 infections and up to 5,000 deaths recorded annually. Despite improved disease surveillance, the public health response continues to be undermined by widespread misinformation, which erodes trust and delays health-seeking behaviour. This study investigates how accurate media reporting influences public perception, trust, and behavioural responses during Lassa Fever outbreaks in Nigeria, Liberia, and Sierra Leone.

Methods: A convergent mixed-methods design was adopted. A total of 180 media items were subjected to content analysis. In-depth interviews (n=25) were conducted with health journalists and public health communication officers, alongside structured surveys involving 300 community members. Media content was assessed based on timeliness, completeness, accuracy, and citation of trusted sources. Quantitative data were analysed using SPSS version 26, while qualitative data were coded using NVivo 12, guided by the Health Belief Model and the Diffusion of Innovations framework.

Results: Sixty-five per cent of media reports aligned with official public health guidance; however, only 40% cited verified expert sources. Local radio was the most trusted medium, particularly in rural settings. Identified barriers included limited access to real-time outbreak data, inadequate journalist training, and the pervasive spread of misinformation through social media. Nearly half of the surveyed community members recalled encountering false claims, including those linking Lassa Fever to spiritual causes or herbal remedies.

Conclusion: Media remain a vital platform for outbreak communication but require improved coordination with health authorities and capacity strengthening. Proactive infodemic management, culturally adapted messaging, and strategic engagement with trusted local communicators are critical for enhancing the effectiveness of Lassa Fever response efforts.

Keywords: *Lassa Fever, misinformation, media, infodemic, West Africa, outbreak communication*

Abstract ID: ELIC202570
Poster 138

Household Hygiene Practices and Knowledge of Lassa Fever: A Comparative Study Between Rural and Urban Areas in Ondo State

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Introduction: Ondo State recently took over as the epicenter of Lassa Fever infections in Nigeria. Several community household practices could lead to an increase in disease transmission, necessitating a study to assess and compare household hygiene preventive practices and knowledge of Lassa fever among rural and urban dwellers in Ondo State.

Methods: This is a descriptive cross-sectional comparative study. Data was collected using semi structured interviewer administered and pretested questionnaires. Multistage sampling was used to select 621 community respondents. The data collected was analysed using SPSS software.

Results: All respondents from urban and 98% of rural areas respondents were aware of the disease. Overall good knowledge score was 100%for urban and 33.3% among rural areas respondents (p< 0.05). About 47.2% of urban and 29.3% of rural respondents had good hygiene practices (p< 0.05). Urban respondents were 1.9 times more likely to have good knowledge compared to rural respondents (p< 0.05). Rural respondents were 1.6 times more likely to have a good hygiene practice compared to urban respondents (p>0.05).

Conclusion: Gaps in household hygiene practices and knowledge were observed, with poorer gaps in rural, suggesting a need for a sustained state-wide health promotion programme, to translate knowledge into good preventive practices.

Keywords: *Lassa fever, Knowledge, Practice and Good hygiene.*

Abstract ID: ELIC202516
Poster 139

Knowledge and preventive practices against Viral Hemorrhagic Fevers amongst adult residents in a North-Central suburban Nigeria community

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Introduction: Viral Hemorrhagic Fevers (VHFs) are severe illnesses caused by RNA viruses, associated with high morbidity and mortality, especially in areas like Nigeria. Communities in suburban North-Central Nigeria face increased risks due to limited awareness and preventive practices regarding VHFs. This study assessed the knowledge, attitudes, and preventive practices concerning VHFs among adults in Agbabiaka, a suburban North-Central community located in Kwara state, Nigeria.

Methods: A cross-sectional study was conducted with 300 adults selected through multistage sampling. Structured questionnaires were used to collect data on sociodemographic profiles, awareness, knowledge, attitudes, and preventive practices. Statistical analysis was performed using SPSS v25.0, maintaining ethical standards, including confidentiality and informed consent.

Results: Participants' ages ranged from 18 to over 45 years, with 36% aged 26–35. Females made up 58.7% of respondents. Sixty-two percent reported no prior awareness of VHFs, while 73% of those aware identified social media as their main information source. Average knowledge scores were 53.7%, with higher education significantly associated with better knowledge (p < 0.05). Preventive practices were moderate: 63% recognized the need to avoid rodent consumption, but 57% did not believe regular handwashing was effective against transmission.

Discussion: While there is moderate awareness of VHFs, significant knowledge gaps exist, particularly regarding effective prevention strategies. The reliance on social media for information highlights the need for structured health education. Educational status is a key predictor of knowledge, underscoring the importance of formal education in health literacy.

Conclusion: Knowledge and preventive practices related to VHFs in this community are lacking. Interventions, such as public health campaigns and community engagement, are necessary to reduce VHF risks. Enhancing primary healthcare systems to incorporate preventive education is recommended for lasting impact.

Keywords: *Viral Hemorrhagic Fevers, knowledge, preventive practices, suburban community, North-Central Nigeria, public health.*

Abstract ID: ELIC2025402
Poster 140

Planetary Health Design Lab (PHDL): A Systems Innovation Platform to Address Climate-Sensitive Zoonoses in Nigeria

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Introduction: Lassa fever, a climate-sensitive zoonotic disease endemic to West Africa, continues to challenge Nigeria's health system due to environmental disruption, inadequate early warning mechanisms, and fragmented multi-sectoral governance. Between 2019 and 2024, Nigeria recorded over 5,000 confirmed cases, with case fatality ratios ranging from 15% to 20% in high-burden areas.

Methods: This concept proposes the Planetary Health Design Lab (PHDL) as a systems innovation platform for integrating ecological and health data to address climate-sensitive zoonoses. The framework is designed to incorporate scenario modeling, spatial prioritization, and participatory systems mapping to co-create context-specific interventions. The proposed approach seeks to adapt decision-support systems for planetary health governance in LMICs. The conceptual model will be piloted using Nigeria as a case study, focusing on Lassa fever, with potential for international adaptation through future collaborations.

Results: Early application of the PHDL in Nigeria demonstrates its potential to: (1) strengthen health and environment collaboration, (2) guide anticipatory interventions in Lassa fever hotspots, and (3) connect planetary health research with global technical partners. Cross-country partnerships in Japan and Canada offer complementary decision-support frameworks, including forest sector modeling and cumulative effects tools, adaptable to LMIC contexts.

Conclusion: The PHDL offers a transdisciplinary, locally embedded, and globally networked innovation ecosystem for addressing Lassa fever and similar health risks at the human–nature interface. By institutionalizing systems thinking and nature-based governance, the lab supports sustainable epidemic preparedness and planetary health equity.

Keywords: *Lassa fever, planetary health, systemic innovation, climate-sensitive diseases, Nigeria, health-environment interactions, nature-based solutions, governance*

Abstract ID: ELIC2025344
Poster 141

Knowledge without action: exploring the gap between awareness and behaviour on Lassa Fever prevention in Ondo State, Nigeria, July 2024.

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Introduction: Lassa fever (LF) poses a significant public health threat in Ondo State, Nigeria with persistent high-risk behaviours among community members contributing to continuous transmission. LF preventive measures include improved environmental and food hygiene, though cultural & social norms and psychological factors hinder adoption of preventive practices. This study examines the disconnect between awareness and behaviour in two high-burden Local Government Areas (LGAs) to understand the drivers of LF transmission.

Methods: This qualitative study was conducted in Akure South and Owo in Ondo State. A structured questionnaire was administered to 47 participants during eight key informant interviews and six focus group discussions. Participants included politicians, community leaders, youths, traditional and religious leaders, healthcare workers, artisans, and LF survivors. A thematic analysis conducted to identify key themes related to LF knowledge, practices, and barriers to behavioural change. Ethical approval was obtained, and informed consent was secured from all participants.

Results: All participants were knowledgeable about LF transmission and prevention, although behavioural gaps remained evident. Many reported continued consumptions of poorly-stored food, linked to economic hardship and lack of access to hygienic facilities. Cultural beliefs, including misconceptions about spiritual causes of LF and belief in its incurability, were commonly cited. Delayed care-seeking behaviour and stigma further limited timely treatment. Challenges such as ineffective government interventions, expired rodenticides and inadequate environmental sanitation were highlighted. These factors collectively undermined preventive behaviours despite widespread awareness.

Conclusion: Bridging the gap between awareness and behavioural change in LF prevention requires context-specific, culturally sensitive interventions. Engaging local leaders and communities in ongoing education, strengthening environmental sanitation programs, and addressing misinformation through trusted sources is critical. Sustained government investment in preventive activities and timely healthcare access is essential to reducing LF transmission in Ondo State.

Keywords: *Lassa fever, awareness, behaviour, prevention, Ondo State, public health*

Abstract ID: ELIC2025341
Poster 142

Food Safety from Farm-to-Table: A Qualitative Study to Co-Create Lassa Fever Control Strategies in Ondo State, July 2024

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Introduction: Ingestion of contaminated foods has been identified as an infection route for Lassa Fever (LF). Food processing and storage practices, such as food drying on the ground and prolonged storage in warehouses, increase the risk of food contamination and infection in people who consume these foods. Breaking this disease transmission pathway is critical for reducing the prevalence of LF. This study was conducted to optimize LF control by co-creating solutions for challenges identified by affected communities.

Methods: A qualitative study was conducted in 2 high burden Local Government Areas of Ondo State, Akure South and Owo. 8 key informant interviews and 6 focus group discussions were conducted with traders, religious leaders, politicians, youth groups, LF survivors, artisans, and healthcare workers, with data collected using voice recorders. Data were analyzed manually through transcription, coding, and theme development and archived on an organizational shared drive with strict access to the project team.

Results: Food safety gaps from "farm to table" promoting LF transmission were identified. The abundance of rats in farms suggests a first contamination point. Participants reported grain contamination by rats, with vendors often repacking contaminated grains to conceal evidence of rat infestation. Poor hygiene and improper waste management in markets and residential areas were prevalent, creating favorable conditions for rat infestation and food contamination. Solutions proffered included improvement in personal hygiene, use of processing and storage tools that keep rats from food, investment in waste management infrastructure, coordinated and sustained health education campaigns, and monitored food production.

Conclusion: Food safety is crucial in halting LF transmission. Understanding food processing and storage practices while leveraging existing community structures is a strategic combination that can significantly reduce food contamination, which can be strengthened with a whole-of-society approach and governmental support.

Keywords: *Lassa fever, food hygiene, contamination, food safety*

Abstract ID: ELIC2025165
Poster 143

Measuring Knowledge, Attitudes, and Practices in Lassa Fever Prevention: A Cross-Sectional Survey from Kailahun and Kenema Districts, Sierra Leone

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Introduction: Lassa fever (LF) remains a significant public health threat in West Africa, particularly in Sierra Leone's endemic districts. Despite its high morbidity and mortality, alarming and persistent gaps persist in community knowledge, attitudes, and preventive practices (KAP). This study assessed KAP toward LF prevention in high-risk areas of Kailahun and Kenema districts, Sierra Leone, to inform targeted interventions.

Methods: A cross-sectional survey of 1,033 adults was conducted using multistage sampling across urban and rural communities. Data were collected via structured questionnaires, assessing LF awareness, symptom recognition, transmission routes, and preventive behaviours. Descriptive statistics, chi-square tests, and logistic regression were used for analysis (SPSS v28). Ethical approval was obtained from the Sierra Leone Ministry of Health.

Results: Most respondents (90.9%) were aware of LF, primarily through health workers (48.9%). However, knowledge gaps existed: only 23.2% recognized bleeding as a symptom, and 3.1% erroneously cited mosquito transmission. While 67.1% perceived LF as severe, 40.3% reported patient stigmatization. Preventive practices were suboptimal: just 12.8% practiced proper food storage, and 29% rarely washed hands. Regression analysis revealed higher knowledge among educated individuals (AOR=17.36, p=0.006) and males (AOR=1.46), positive attitudes linked to education (AOR=2.23, p < 0.001), while females exhibited poorer practices than health workers (AOR=0.72).

Conclusion: Despite high awareness, critical knowledge gaps and inadequate preventive practices persist, exacerbated by socioeconomic and gender disparities. Community-based education, improved sanitation infrastructure, and stigma reduction campaigns are urgently needed. Findings align with regional studies in Nigeria and Liberia, underscoring the necessity for standardized, context-specific LF interventions across West Africa.

Keywords: *Lassa fever, Knowledge-attitudes-practices (KAP), Sierra Leone, Preventive behaviours*

Abstract ID: ELIC2025267
Poster 144

Comparative Analysis of Lassa Fever Case Identification: Health Facilities vs. Community Settings

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Introduction: Lassa fever is endemic in Nigeria, especially in areas where multimammate rats are common. It has been a public health concern in Nigeria since 1950. The study emphasizes the significance of integrated surveillance systems, identifying detection gaps, understanding underreporting factors, and strengthening collaboration between community health workers and healthcare facilities in Nigeria.

Methods: This study conducted a retrospective analysis of Lassa fever cases reported between Epi Week 1 and Epi Week 20, 2025, using data from the Surveillance Outbreak Response Management and Analysis System (SORMAS). Comparison of case detection and reporting effectiveness between health facilities and community settings, examining modes of reporting and detection performance was analysed.

Results: Health Facility Cases: 87% (n=426) of cases were detected, with a median reporting time of 2 days. Community Cases: 13% (n=62) of cases were identified, with a median reporting time of 4 days. Health facilities reported cases more promptly and in higher numbers compared to community settings, underscoring their importance in Lassa fever surveillance.

Conclusion: The study shows disparities in reporting timeliness and case detection rates between two critical surveillance settings. Health facilities are crucial for Lassa fever surveillance, but community-based detection is also essential. Strengthening community surveillance, integrating health workers, addressing case identification gaps, enhancing community awareness, and fostering collaboration between facilities and communities are recommended.

Keywords: *Reporting, health facilities, communities, Lassa fever*

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Poster 145

The Epidemiology of Lassa Fever in Ghana: A Study on the 2023 Lassa Fever Outbreak in Ghana

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Introduction: Viral disease outbreak remains a key public health concern given its impact on life and livelihood. Historical data suggests Lassa Fever is endemic in several West African countries with sporadic cases occurring elsewhere in the region. In February 2023, Ghana recorded its second outbreak of Lassa fever following that of 2011. To aid in future outbreak investigation and response, the present study sought to document the epidemiology of the recent outbreak in Ghana.

Methods: The study is a cross sectional quantitative analytical study. The data presented in the study include demographic, clinical, and test results data. The demographic and clinical data were captured from the case investigation forms accompanying samples submitted to Noguchi Memorial Institute for Medical Research between February and March 2023 for Lassa fever testing. The Test results data were obtained from Polymerase chain reaction amplification of samples received. Sample processing and testing were carried out according to the kits manufacturer's protocol. Ribonucleic Acid isolation was carried out using the QIAmp RNA kit. Polymerase chain reaction amplification processes were performed using the Qiagen OneStep RT PCR protocol. Data management and analysis were done using Microsoft Excel and STATA. Descriptive analysis was used to analyse and report the demographic and clinical characteristics. Inferential statistics was used to determine associations between the study variables.

Results: The overall positivity rate was 5.19% out of the 539 samples received. Most cases were confirmed in the Month of February. Positivity rate was higher among females (5.65%). Over 90% of all confirmed cases were from the Greater Accra Region. Case burden for LF was highest among healthcare professionals and adults aged 25-35 years. The commonly reported symptoms among confirmed cases included headache, intense fatigue, fever, and muscle/joint pain.

Conclusion: Transmission was largely through contact with the highest burden among healthcare workers.

Keywords: *Lassa Fever, Lassa fever transmission, Lassa fever outbreak, Ghana, West Africa, Sub-Saharan Africa*

Characteristics and outcomes of patients hospitalized with the new coronavirus in Cabo Verde in the semester after the country's first case

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Introduction: Cabo Verde had one of the highest COVID 19 attack rates in Africa. Contact tracing and free mass testing implemented early on allowed for high case detection, while the overall fatality rate remained under 1%. However, little is known concerning those requiring hospitalization. This study aimed to describe the clinical, sociodemographic characteristics and outcomes of patients hospitalized with severe acute respiratory syndrome coronavirus 2 (SARS CoV 2) between March 19th (date of the first case) to September 30th, 2020.

Methods: Descriptive retrospective study using medical files of patients with SARS CoV 2 infection in the islands of São Vicente, Boavista, and Santiago (cities of Praia and Assomada). Frequencies, measures of central tendency, and relative measures were calculated using Excel and Epi Info 7.

Results: included 179 patients. Their average age was 57 (DP=23.5), and 51% (n=92) were female. At admission to the infirmary, 67% (n=120) had a respiratory rate over 20 breaths/minutes, 49% (n=87) had a cough, and 7% (n=12) presented axillar temperature ≥38°C. The median hospital stay was seven days (Range: 0 72), and 15% (n=26) of patients required hospitalization at a Special Care Unit. Acute Respiratory Distress Syndrome (18%; n=31), sepsis (13%; n=23) and acute kidney injury (11%; n=20) were the most frequent complications. Of the 108 patients needing ventilation support at some point, 14% (15) received invasive mechanical ventilation. At the endpoint, 79% (142) of individuals had been discharged, 19% (33) had died, and 2% (4) were non residents transferred to hospitals abroad upon request. Among those who died, 32 presented with respiratory rate over 20 breaths/minute (p=0.000), 17 had diabetes (p=0.001), 8 had obesity (p=0.036) and 24 had hypertension (p=0.045).

Conclusions: Mortality was high among those with some comorbidities and in older strata. COVID 19 policies and resource allocation should be reinforced to attend vulnerable groups

Keywords: *COVID-19, Mortality, Comorbidity*

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Poster 147

Understanding community Beliefs, Misinformation, and Behaviour: A Social and Behavioural Science Lens on Lassa Fever Prevention in Nigeria.

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Introduction: The incidence of Lassa fever (LF) in the last decade in West African countries have been on the increase. In Nigeria, LF have become endemic leading to increased fatalities among health care providers. Bauchi state, Nigeria have witnessed more frequent outbreaks, becoming one of the high-risk states. Despite LF's endemic nature, many communities remain reactive rather than proactive in their approach to LF outbreaks. Addressing this challenge requires a comprehensive understanding of community perceptions and misinformation needed for designing effective and context specific disease prevention strategies.

Methods: The study sites comprise of selected communities where intervention was implemented in two (Bauchi and Toro) local government areas (LGAs) and one control LGA (Dambam) using a quasi-experimental study design. The Socio Ecological Model based on behavioral method was applied to assess the impact of risk communication and community engagement interventions on knowledge, attitudes, and practices related to LF in Bauchi State, Nigeria. Data was collected using structured interviews with 1,544 adult community members and analyzed using Stata, version 17.

Results: Findings revealed that LF knowledge among community members varies, with higher awareness in Bauchi and Toro compared to Dambam LGA. Despite this, a significant proportion of respondents are still engaged in high-risk practices like open-air drying. Positive attitudes towards LF elimination were noted in intervention LGAs, emphasizing community support and reporting suspected cases to authorities. Nonetheless, socioeconomic obstacles and ongoing misinformation, including the notions that LF is a result of witchcraft or a government conspiracy, persist in obstructing complete community adherence. Communication channels for LF information included radio, healthcare workers, and friends/family members, with radio and friends/family members being the preferred channels.

Conclusion: The study emphasizes the significance of culturally grounded communication and behavioral insights in promoting sustainable change and building trust in community-based disease prevention strategies in low-resource settings.

Keywords: *Lassa Fever, Community Perceptions, Misinformation*

Abstract ID: ELIC2025281
Poster 148

Awareness of Lassa Fever and Adherence to Preventive Measures Amongst Residents of Makurdi Local Government Area of Benue State, Nigeria.

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Introduction: Lassa fever remains a significant public health threat in West Africa, particularly in Nigeria, where endemicity and recurring outbreaks continue to challenge disease control efforts. Despite the well-established modes of transmission and clear national preventive guidelines, many communities exhibit suboptimal compliance with recommended preventive behaviours. This study evaluated the awareness of Lassa fever, adherence to preventive practices, and the contextual factors that influence these behaviours among residents of the Makurdi Local Government Area in Benue State, Nigeria.

Method: A community-based cross-sectional descriptive study design was used. A total of 450 adult residents were selected using a multistage sampling technique. Data were collected using structured, interviewer-administered questionnaires and analysed using SPSS version 26. Descriptive and inferential statistics, including chi-square tests and logistic regression,
were employed.

Results: Findings revealed that 98.0% of respondents were aware of Lassa fever, with healthcare facilities (33.3%), radio (31.8%), and social media (27.8%) identified as the primary sources of information. However, only 33.3% of respondents correctly understood the mode of transmission. Although a substantial 96.4% reported engaging in preventive practices, just 70.0% did so consistently. Notably, only 7.1% actively avoided contact with rodents, and 10.4% maintained a clean environment. Adherence to preventive measures was significantly influenced by factors such as age, marital status, educational attainment, occupation, and cultural beliefs (p < 0.05). The logistic regression analysis revealed that financial and cultural factors had a moderate influence on adherence, with cultural beliefs negatively impacting preventive practices (p =0.035).

Conclusion: Conclusion: Although awareness of Lassa fever was high among respondents, there are significant gaps in understanding transmission routes, and adherence to preventive measures is often inconsistent. Financial constraints and cultural beliefs were the main correlates hindering compliance. We recommend targeted health education and tailored interventions to bridge these gaps and strengthen prevention efforts.

Keywords: *Lassa fever, awareness, preventive practices, Makurdi, Benue State*

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Poster 149

Leveraging Private Sector Community Health Providers to Improve Outbreak Preparedness, Prevention and Response: Lessons from the IntegratE Project in Nigeria.

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Introduction: Community engagement is critical in promoting awareness, dispelling myths, and strengthening outbreak preparedness and response. In Nigerian communities, private sector providers, particularly Community Pharmacists (CPs) and Patent and Proprietary Medicine Vendors (PPMVs) serve as the first point of healthcare contact. The IntegratE project, implemented by Society for Family Health, has trained and supported them to deliver quality family planning (FP) and primary healthcare (PHC) services. This study explores how lessons from the IntegratE private sector model can be adapted to empower communities in preventing and responding to Lassa fever and other viral hemorrhagic fevers outbreak.

Methods: The IntegratE project adopted a multi-layered approach involving capacity building, demand generation, and strategic community engagement in 11 Nigerian States from 2017 to 2024. Over 5,200 CPs and PPMVs were trained in interpersonal communication, counseling, referral, health promotion and data reporting, particularly in FP and maternal-child health services. This abstract proposes the adaptation of these methodology particularly the role of trusted CPs and PPMVs to Lassa fever prevention through early warning systems, community-based surveillance, counselling and targeted risk communication.

Results: Evidence from the IntegratE project indicates increased FP awareness and uptake, improved health-seeking behavior, reduced misconceptions and growing trust in private sector healthcare providers among underserved populations. Over 834,523 women accessed FP through these trained providers with about 33% (274,013) being new clients, who may not have accessed FP if the providers were not trained. Also, over 551,306 children seen for various PHC services including malaria, pneumonia, diarrhea, tuberculosis and malnutrition.

Conclusion: The IntegratE project demonstrates that empowering trusted private sector providers can improve community health outcomes. Integrating CPs and PPMVs into Lassa fever response frameworks can enhance early detection, promote timely disease reporting, encourage behavioral change, improve community engagement, reduce Lassa fever myths and stigma and contribute to more resilient health systems.

Keywords: *community engagement, private sector providers, Community pharmacists, patent and proprietary medicine vendors, Lassa fever*

Knowledge and behaviour regarding Lassa Fever among residents in Taraba State, Nigeria

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Introduction: Lassa fever (LF) is a zoonotic viral haemorrhagic disease caused by *Arenavirus*. It is primarily transmitted from rodent to human through contact with food or household items contaminated by the urine or faeces of an infected *Mastomys natalensis*, a Natal multimammate peridomestic rat. Human-to-human transmission also occurs via exposure to bodily fluids such as blood, particularly in healthcare settings. The outbreak of LF is recurrent in Nigeria, with Taraba being one of the top five (5) most affected states. This study assessed the knowledge and behaviours towards LF as well as associated factors that predispose the population to LF in Taraba State, Nigeria.

Methods: The study used a cross-sectional mixed methods approach to collect both quantitative and qualitative data from respondents aged fifteen (15) years and above across Local Government Areas (LGAs) with a history of LF outbreaks in Taraba state. A sample size of 420, calculated using Yamane's formula, was used in this study. Percentages, charts, and tables were used to present descriptive statistics. In contrast, inferential statistics, including chi-square and logistic regression, were used to identify the association between sociodemographic variables and study outcomes.

Results: The study found that 74% of the respondents had adequate knowledge, and 51% had safe behaviours regarding Lf. All sociodemographic factors tested in this study were found to be associated with the knowledge and behaviours regarding Lf to varying degrees; occupation (p<0.001) and area of residence [OR: 2.45 (1.60 - 3.80)] were significantly associated with knowledge and behaviour, respectively.

Conclusion: These results highlight the need for context-specific interventions to enhance health education and community engagement efforts, addressing occupational and geographic disparities in disease knowledge and preventive behaviours to reduce the risk of Lassa fever transmission in Taraba State.

Keywords: *Knowledge, Behaviour, Lassa fever, Taraba, Nigeria*

A hygiene intervention to improve mothers' weaning food handling practices in rural Gambia

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Background: The Gambia has high rates of under-5 mortality from diarrhoea and pneumonia, peaking during complementary-feeding age. Community-based interventions may reduce complementary-food contamination and disease rates.

Methods: The intervention included a community-wide campaign on days 1, 2, 17, and 25, a reminder visits at 5 months, plus informal community-volunteer home visits. It promoted 5 key complementary-food and 1 key drinking-water safety and hygiene behaviours through performing arts, public meetings, and certifications delivered by a team from local health and village structures to all villagers who attended the activities, to which mothers of 6- to 24-month-old children were specifically invited. Control villages received a 1-day campaign on domestic-garden water use. Outcomes were measured at 6 and 32months in a random sample of 21–26 mothers per cluster. The primary outcome was a composite outcome of the number of times key complementary-food behaviours were observed as a proportion of the number of opportunities to perform the behaviours during the observation period at 6 months. (Registration: PACTR201410000859336).

Results: The composite behaviour score on the primary outcome was 65% versus 15% for intervention against control (p<0.001). At 6 months the adjusted incidence rate ratio [aIRR] = 4.44, 95% CI 3.62–5.44, p <0.001), and at 32 months the aIRR was 1.17 (95% CI 1.07–1.29, p=0.001). Secondary health outcomes also improved with the intervention: mother-reported diarrhoea hospitalization at 6 months, with aRR = 0.35 (95% CI 0.19–0.66, p = 0.001), and at 32 months, with aRR =0.38 (95%CI0.18–0.80, p=0.011)

Conclusions: We found that low-cost and culturally embedded behavior change interventions were acceptable to communities and led to short- and long-term improvements in complementary-food safety and hygiene practices, and reported diarrhea and acute respiratory tract infections.

Keywords: *cluster randomised controlled trial, diarrhoea, pneumonia, behaviour change, weaning-food, hygiene, community intervention, dramatic arts, motivational drives*

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Poster 152

Financing the Fight Against Lassa Fever: A 10-year Review of National Budgetary Allocations and Donor Contributions in 10 Endemic African Countries (2014–2024).

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Background: Lassa Fever (LF) poses a recurrent public health threat in Africa. Despite its epidemic potential, financing for preparedness remains inadequate across many endemic countries. This review examines the national budgetary allocations and donor contributions of 10 endemic countries towards LF preparedness, with a focus on sustainability and alignment with national policies.

Methods: A structured review of national health budgets, expenditure frameworks, and donor databases was conducted across ten LF–endemic countries: Nigeria, Sierra Leone, Liberia, Ghana, Guinea, Benin, Togo, Mali, Burkina Faso, and Côte d'Ivoire. Data sources included WHO Joint External Evaluations, World Bank Health Financing Profiles, and OECD Creditor Reporting System records. Preparedness financing was categorized into six domains: surveillance, laboratory capacity, emergency operations, infection prevention and control, case management, and risk communication.

Results: National budgetary allocations for LF preparedness were limited, with less than 17% of total funds originating from domestic sources. Nigeria showed the highest allocation but largely through emergency spending, not sustained budget lines. Post-Ebola reforms in Sierra Leone and Liberia improved donor alignment, yet domestic investment remained low. Other countries had no specific budget lines for LF, with funding dispersed under broader communicable disease programs. Donor funding from WHO, USAID, ECDC, and the World Bank Pandemic Emergency Financing Facility, often filled critical gaps but was mostly short-term and response-focused. Weak donor coordination and duplicative project funding were reported by stakeholders in six of the ten countries.

Conclusion: LF preparedness financing across endemic African countries remains heavily donor-dependent, poorly structured, and unsustainable. There is an urgent need to institutionalize epidemic financing within national budget cycles, with specific allocations for LF preparedness and health emergency infrastructure. Governments should establish public health emergency funds, adopt budgetary contingency frameworks, and explore innovative domestic financing approaches, such as levies on high-risk industries or integration into health insurance schemes.

Keywords: *Lassa Fever; Budget; Africa; Donor; Allocations; Finance*

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Poster 153

Cultivating excellence in Lassa Fever research: The essential contribution of GCP training to medical countermeasure development

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Introduction: Lassa fever (LF) an Acute Haemorrhagic Viral Infection is a significant public health problem across West African countries with approximately 300,000 cases reported annually and 15% case fatality rate among hospitalised patients. LF causes enormous burden and straining under-resourced health systems, subsequently the need to address the problem is highly discussed among the scientific research community.

However, the shortage of trained research personnel capable of conducting Good Clinical Practice (GCP) compliant clinical trials limit the effective implementation of evidence-based interventions against LF. Our study aims to address this critical capacity gap in conducting GCP-compliant LF research by implementing targeted GCP trainings.

Methods: We designed and implemented a comprehensive GCP training program at Abubakar Tafawa Balewa Teaching Hospital (ATBUTH), in Bauchi State, Nigeria. The training consisted of theoretical sessions and practical application of targeted clinical researchers at ATBTH involved in LF trials. The training modules covered essential GCP principles including ethical conduct, regulatory compliance, informed consent, and data integrity standards.

Results: Forty-two clinical researchers successfully completed the GCP training. The training enhanced participants' understanding of GCP principles and improved institutional readiness to design, implement, and monitor LF clinical trials. It also strengthened data credibility, fostered community trust, and aligned LF research activities with international regulatory standards.

Conclusion: Targeted GCP training significantly improved local capacity for conducting high-quality LF clinical trials. This intervention addresses a critical operational barrier to medical countermeasure development. We recommend systematic expansion of similar training programs across West African research institutions to build robust regional capacity for LF research. Such initiatives are essential for accelerating the development of vaccines and therapeutics, ultimately reducing the substantial disease burden.

Keywords: *Lassa fever, Haemorrhagic Viral Infection, Good Clinical Practice, ethics, informed consent, regulatory-compliance*

Abstract ID: ELIC2025195
Poster 154

Sustainable Financing for Lassa Fever Outbreak Response: Policy and Insurance Integration in Nigeria

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Introduction: *Lassa fever* remains endemic in Nigeria, yet diagnostics, treatment, and hospitalization are excluded from the National Health Insurance Scheme (NHIS), leaving most patients to cover costs out-of-pocket. With NHIS coverage below 10%, both epidemic preparedness and financial protection are compromised. The 2022 National Health Insurance Authority Act offers a policy window to integrate *Lassa fever* services into NHIS and advance Universal Health Coverage (UHC).

Methods: A systematic desk review of national health policy, epidemic preparedness, and financing documents published between 2010 and 2024 was conducted using the PRISMA framework. Key sources included the NHIS Operational Guidelines (2012), National Health Policy (2016), NHIA Act (2022), Nigeria's UHC Roadmap (2020–2030), and NCDC Lassa fever Incident Action Plans (2023–2024). Screening identified 62 unique records, 31 full texts were assessed, and 17 documents met inclusion criteria. Thematic analysis explored gaps in benefit design, financing barriers, and the roles of the Basic Health Care Provision Fund and the COVID-19 Preparedness and Response Project funds.

Results: The review revealed that NHIS benefit packages omit *Lassa fever* services and that primary health centers in endemic states lack accreditation. Analysis of the 2023 Incident Action Plan showed that only 6 of 38 (16%) priority activities were fully implemented, 7 of 38 (18%) were partially implemented, and 25 of 38 (66%) were largely not conducted. In 2024, flexible, decentralized financing markedly improved Emergency Operations Centre activation and case reporting.

Conclusion: Achieving resilient and equitable outbreak response in Nigeria requires more than emergency activation—it demands structural reform. Integrating *Lassa fever* services into NHIS benefit packages is not just a policy option; it is a public health imperative. Strategic actions such as expanding NHIS accreditation to endemic PHCs, institutionalizing flexible subnational financing, and operationalizing joint NHIA–NCDC accountability frameworks can transform underfunded response plans into sustainable national capacity. These reforms will not only improve the execution of IAPs but also serve as a model for embedding epidemic preparedness within UHC systems across West Africa.

Keywords: *Lassa fever, health insurance, policy integration, epidemic preparedness, Nigeria*

Abstract ID: ELIC2025390
Poster 155

Impact of Emergency Operation Centre Meetings on Lassa Fever Case Management in Edo State, Nigeria, 2025

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Introduction: Lassa fever remains a recurring problem in Edo State, Nigeria, often placing significant pressure on the healthcare system during outbreaks. In response to these challenges, Emergency Operations Centre (EOC) meetings were introduced to enhance outbreak response. This study explores how these regular EOC meetings have impacted case management outcomes during the 2025 outbreak

Methods: We conducted a retrospective observational study using records from EOC meetings and hospital-based data. Data before and after the initiation of routine EOC meetings were analyzed. Quantitative benchmarks included treatment time, case fatality rate (CFR), and average duration of hospital stay. Additionally, in-depth interviews with frontline case workers were conducted to understand the effects of the meetings on collaboration, communication, and clinical decision-making

Results: Following the commencement of EOC meetings, the mean time from diagnosis to treatment initiation dropped from 8.5 hours to 4 hours. The CFR declined from 22% to 14% while the average hospital stay decreased from 15 to 10 days. Qualitative data revealed improved communication across health institutions, streamlined resource distribution, and quicker decision-making during outbreaks.

Conclusion: The structured and regular use of EOC meetings during the outbreak in 2025 led to more efficient coordination and better outcomes in case management. These findings highlight the critical role of coordination platforms in strengthening epidemic responses. We recommend that EOC frameworks should be integrated permanently into outbreak preparedness and case management systems across Lassa endemic zones in Nigeria

Keywords: *Lassa fever, Emergency Operations Centre, outbreak coordination, case management, Nigeria, epidemic response*

Abstract ID: ELIC2025197
Poster 156

The African Risk Capacity parametric insurance product: a rapid and predictable innovative financing solution for African sovereigns affected by high-impact infectious disease outbreaks

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Introduction: The African Risk Capacity (ARC) is a Specialized Agency of the African Union (AU) mandated to help its member states improve their capacity to plan better, prepare for, and respond to climate-related disasters and infectious disease outbreaks of epidemic potential.

Methods: ARC was created on the premise that investing in preparedness and prearranged financing solutions is highly cost-effective, saving up to four dollars for every dollar invested in *ex-ante* approaches, whilst saving lives through early containment.

Results: Historically, slow and unpredictable funding has been a significant contributing factor to the inability of affected countries to respond rapidly to an initial outbreak; whilst there has been some improvement, governments' access to financing instruments for early-stage outbreak response continues to be challenging. In 2022, ARC launched its sovereign parametric insurance product for a first set of epidemic-prone diseases: Ebola, Marburg, and meningitis. Given an outbreak of a specific pre-agreed size, this prearranged financing instrument provides a payout to an insured country. This financing mechanism has an essential capacity-building component that supports countries' preparedness and readiness through risk profiling, outbreak modelling, contingency planning, and response through parametric insurance. Senegal was the first country to enrol, thus paving the way for other nations to include parametric insurance in their epidemic risk financing strategy. Other priority diseases belonging to the acute haemorrhagic fever syndrome category, such as Lassa fever, Crimean-Congo Haemorrhagic Fever, and Rift Valley Fever, are under consideration by ARC for the design of the next set of parametric insurance products.

Conclusion: Solutions that strengthen preparedness and support early response to outbreaks and epidemics can potentially reduce the public health burden, protect the government's budget against fiscal shocks, and de-risk other sources of funding disbursed to governments or implementing agencies, thereby contributing to resilient and sustainable financing for pandemic threats, safeguarding lives and livelihoods.

Keywords: *risk assessment, epidemic risk financing, epidemic preparedness, parametric insurance, risk transfer, prearranged financing*

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Poster 157

A Governance Model for Lassa Fever and Emerging Infectious Diseases: The Irrua Institute Initiative

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Background: The Institute of Lassa fever Research and Control (now renamed as Institute of Viral and Emergent Pathogens Control and Research -IVEPCR) is in Irrua Specialist Teaching Hospital, Nigeria. It was established in 2007 as an indigenous initiative of the hospital management in response to the epidemic of Lassa fever (LF) in the area. At commencement of operation, mortality from cases of LF ranged from 60 -80%. There was dearth of Diagnostic and case management capabilities

Methodology: For administration, a director and secretary were appointed to man the various divisions created. The divisions were Training, Diagnostic and Research Laboratory, Case management, Community outreach, Data management, Information/media and administration/secretariat. The Institute related with stakeholders and form partnership at the community, Local government area, State, National and International levels. The hospital ethics committee ensured compliance with GCP in all research studies. The Irrua study group made up of local and international partners coordinated all research studies, ensured compliance with GCP including signing of MOUs.

Results: Capacity in molecular diagnostics were built over time with 50 laboratory personnel able to run RT-PCR diagnostics. Apart from LF, diagnostics capability has been built on other emergent infectious diseases such as Ebola, Covid-19, Dengue and mpox. Case management is by trained physicians including capability in hemodialysis. Mortality reduced from 60 -80% at inception of the institute to 10 -15% in 2024/2025. The institute is presently a training hub in diagnostics, case management and research for physicians from across the nation.

Conclusion: From the setup of a simple governance structure at inception 17years ago, the Institute has evolved to a level able to manage and respond to outbreak of LF and other EIDs with little or no support from external partners.

Keywords: *Lassa fever, Research governance, Emerging infectious diseases, Capacity building*

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Poster 158

Beyond Financial Autonomy: Strengthening Local Governments for Effective Epidemic Response in Nigeria

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Introduction: Local governments are indispensable to public health emergency preparedness due to their proximity to communities and capacity for localized responses. Countries have shown that empowered local authorities can effectively lead outbreak surveillance, risk communication, and response coordination. In Nigeria, however, local governments remain structurally limited by fiscal dependence on states, ambiguous constitutional status, and weak institutional autonomy, undermining their contributions to epidemic response, including for Lassa Fever. The 2024 Supreme Court ruling mandating financial autonomy has rekindled policy interest in decentralization. However, questions remain about whether fiscal reforms alone can enable meaningful change in health emergency governance.

Methods: This study uses qualitative policy analysis, including document review, stakeholder interviews, and thematic coding. Key documents analyzed include the National Action Plan for Health Security (NAPHS), state preparedness plans, and relevant legal frameworks. Eighteen semi-structured interviews were conducted with local health officials, policymakers, and civil society actors across three Lassa Fever-endemic states (Edo, Ondo, Bauchi).

Results: The findings show a consistent pattern of insufficient integration of local government in core epidemic preparedness structures despite statutory responsibility over primary health care. Structural bottlenecks include limited budgetary discretion, overlapping mandates with state health authorities, and poor political representation. However, in states like Ondo and Edo, preliminary policy shifts following the Supreme Court ruling are enabling limited, but promising, local innovations in disease surveillance and response coordination. Stakeholders stressed the need for more than fiscal decentralization, emphasizing participatory governance, clearer mandates, and community trust as essential for success.

Conclusion: Financial autonomy is a necessary but insufficient condition for effective local epidemic preparedness. True decentralization requires political and democratic strengthening of local governments through elected leadership, accountability mechanisms, and institutional reforms. Only then can they fulfil their potential as drivers of community-centred health resilience and Lassa Fever response.

Keywords: *Local Government, Decentralization, Lassa Fever, Epidemics, Public Health, Nigeria*

Mobile Labs in Outbreak Response: Lessons from North-South Collaboration for pandemic response in West Africa

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Introduction: West Africa continues to face recurring outbreaks of Lassa fever and other infectious diseases, hindered by limited diagnostic capacity. To address this, the Irrua Specialist Teaching Hospital (ISTH) collaborated with the Bernhard Nocht Institute for Tropical Medicine (BNITM) to establish a mobile laboratory facility in 2013. This report describes the contributions and challenges of mobile laboratory deployment during outbreak response.
The mobile laboratory was deployed to Sierra Leone during the 2014-2016 Ebola outbreak, COVID-19 pandemic in Delta State (2020-2022), and Lassa Fever outbreak in Northern Nigeria (2023). Key metrics analyzed include deployment time, samples tested, and turnaround time reduction.

Method: During the Ebola outbreak, the mobile laboratory team tested over 8,000 patients in Sierra Leone. In Delta State, over 11,000 patients were screened and tested for COVID-19. In Kaduna, Nigeria, over 200 patients were tested for Lassa Fever in 2023.

Result: Deployment occurred within 24-72 hours of official requests, reducing turnaround time from 7-12 days to 24 hours. This facilitated prompt triage, timely treatment, and early discharge of patients who tested negative, enabling swift containment of outbreaks. The mobile laboratory enhanced diagnostic capacity with accurate on-site testing, improved response times, and strengthened collaboration between national and international health partners.

Conclusion: Mobile diagnostic laboratories represent a scalable, rapid-response tool for enhancing outbreak control efforts across West Africa and beyond. The collaborative model with BNITM demonstrates the value of strong regional and international partnerships in outbreak preparedness and response. The ISTH mobile laboratory facility plays a critical role in infectious disease response strategy, showcasing its flexibility, adaptability, and effectiveness in responding to complex public health emergencies.

Keywords: *Mobile laboratory, collaboration, outbreak response, Turnaround time*

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Poster 160

From Silos to Synergy: Implementing SIS-OT to Strengthen Coordinated Zoonotic Disease Surveillance in West Africa.

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Background: Zoonotic diseases remain a top health threat in ECOWAS, driven by human-animal-environment interactions. The Tripartite Zoonoses Guide promotes cross-sector collaboration to strengthen surveillance and response. The Surveillance and Information Sharing Operational Tool (SIS OT), developed by the Quadripartite, was deployed to enhance coordinated surveillance systems. This study evaluates SIS OT implementation in six West African countries and highlights key challenges.

Methods: From 2022 to 2025, national SIS OT workshops were conducted in Sierra Leone, Mali, Senegal, Guinea, Nigeria, and Côte d'Ivoire. Regional and international facilitators supported multisectoral participants from health, animal, and environmental sectors, along with agriculture, and security. Countries used the standardized SIS OT workbook to self-assess 32 activities grouped under five domains: pre-planning, assessment, planning, implementation, and monitoring & evaluation. They rated capacity levels, set priorities, and developed country specific SIS OT roadmaps. A mixed methods approach combining descriptive and content analysis was used to assess outcomes.

Results: Across the six countries, over 70% of the 32 evaluated activities using the SIS OT tool were rated at the lowest capacity level (Target Level 1). Senegal and Guinea emerged with relatively stronger capacities, particularly in stakeholder mapping, notification, and simulation exercises. Nigeria showed moderate advancement in stakeholder engagement and compliance with international reporting requirements but continued to lag in data integration and surveillance implementation. Mali, Sierra Leone, and Côte d'Ivoire demonstrated limited capacity across all five operational domains. Only a small number of activities reached the "Complete" level, mostly those linked to international notification. Common challenges included weak legal mandates for data sharing, poor interoperability, underfunded laboratories, and limited accountability mechanisms. All countries developed 5-year, costed SIS OT plans with clear governance and follow-up structures.

Conclusion: SIS OT provided a strong foundation for advancing One Health surveillance. While major capacity gaps persist, the approach catalyzed national ownership, fostered multisectoral dialogue, and produced actionable roadmaps. Sustained investment and collaboration are now essential to transform these plans into resilient, responsive surveillance systems.

Keywords: *Zoonotic diseases, SIS-OT, One Health Surveillance, Data sharing, West Africa.*

Implementation of One Health Frontline Field Epidemiology and Laboratory Training Program to strengthen Gambia Public Health Surveillance System, 2024

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Introduction: The One Health approach recognizes the interconnectedness of human, animal, and environmental health and the need for cross-sectoral collaboration to address zoonotic diseases and emerging public health threats. Integrating this concept into training programs enhances the capacity of health systems to detect, prevent, and respond to complex health challenges. The Field Epidemiology and Laboratory Training Program (FELTP) Frontline model, widely used to strengthen health systems and improve surveillance and response, was adapted in The Gambia to incorporate a One Health approach following regional mentor training by the ECOWAS Regional Centre for Surveillance and Disease Control.

Methods: The Gambia's One Health FELTP Frontline cohort recruited participants from human health, veterinary, and environmental sectors. The training combined classroom instruction with field-based activities focused on disease surveillance, data quality audits, outbreak investigation, fishbone problem analysis, zoonotic disease epidemiology, laboratory techniques, and integration of human-animal health data. Partnerships with national ministries and agencies supported practical learning and sectoral collaboration.

Results: The program successfully trained multidisciplinary professionals equipped to lead outbreak responses across sectors. Graduates conducted joint investigations of zoonotic disease outbreaks and contributed to national surveillance activities. The initiative fostered strong collaboration between public health, veterinary, and environmental institutions, improving coordinated responses to health threats.

Conclusion: The Gambia's One Health FELTP Frontline cohort demonstrates the value of integrated, cross-sectoral training in strengthening national health systems. By building a skilled, multidisciplinary workforce, the program enhances sustainable disease control and supports a holistic approach to public health.

K**eywords**: *One Health, FELTP Frontline, Zoonotic Diseases, ECOWAS, RCSDC*

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Poster 162

Strengthening the Workforce: Drafting the ECOWAS Regional FETP Strategic Plan (2026-2030).

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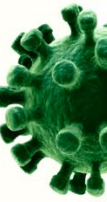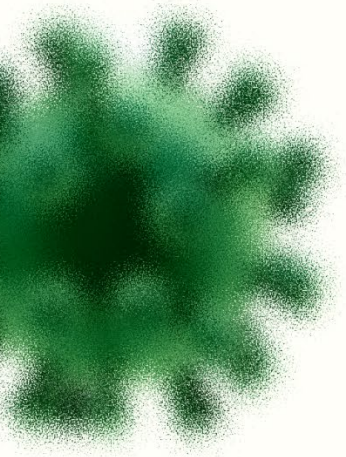
Introduction: The West African Health Organisation (WAHO), through the Regional Center for Disease Surveillance and Control (RCSDC), collaborated with the US CDC and AFENET to conduct a one-day consultative workshop on November 8, 2023, in Mombasa, Kenya. The workshop brought together FETP country directors, coordinators, resident advisors, partners, and experts from ECOWAS member states. Its objectives were to analyze the current state of FETP programs in the region and propose strategic priorities for the 2026-2030 regional workforce development plan

Methods: Before the workshop, member states completed a situational analysis questionnaire. During the workshop, participants reviewed a SWOT (Strengths, Weaknesses, Opportunities, Threats) analysis of FETP programs and engaged in group discussions. These activities helped identify key regional strategies and activities for the 2026-2030 strategic plan.

Results: Thirty participants, including representatives from all 15 ECOWAS countries and key partners, attended the workshop. The situational analysis revealed strengths such as strong capacity-building practices, One Health training, policy frameworks, and university affiliations for advanced programs. However, weaknesses included poor documentation of best practices, weak resource mobilization, lack of FETP institutionalization, limited career pathways for graduates, and unstable funding. Key opportunities included AFENET's networking support, ECOWAS advocacy structures, university partnerships, and regional training centers.

Conclusion: Despite challenges in FETP implementation, the workshop successfully identified critical strategies for strengthening workforce development in the ECOWAS region. Recommendations included improving documentation, securing sustainable funding, institutionalizing FETP programs, and leveraging regional partnerships for long-term success.

Keywords: *Field Epidemiology, Workforce Development, One Health, Regional Strategy*

BOOK OF ABSTRACT

2ND ECOWAS LASSA FEVER INTERNATIONAL CONFERENCE