



WEST AFRICAN HEALTH ORGANIZATION
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Prioritised Research Agenda for Advancing Lassa Fever Vaccine Policy and Decision Making

CEPI



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Foreword

The West African Health Organisation (WAHO) remains steadfast in its mission to promote health research and policy harmonisation across the ECOWAS region. The Lassa Fever Policy Research Agenda represents a major milestone in our collective effort to translate scientific evidence into actionable policies that advance vaccine preparedness and health security in West Africa.

Developed through a participatory process led by WAHO, in collaboration with the Coalition for Epidemic Preparedness Innovations (CEPI) and MMGH Consulting, this agenda reflects the shared priorities of national governments, researchers, and partners across the region. It provides a structured roadmap for generating the evidence needed to guide equitable vaccine introduction and strengthen regional readiness for Lassa fever and other emerging infectious diseases.

WAHO will continue to champion coordination among Member States, national public health institutes, regulatory and ethics bodies, and development partners to ensure these priorities are implemented, tracked, and regularly updated through the Lassa fever coalition. This agenda aligns with WAHO's Regional Health Research Agenda, the West Africa R&D Platform, and the One Health Strategy, underscoring our commitment to a coordinated and resilient regional research ecosystem.

Together, we can ensure that research serves its highest purpose - protecting lives, strengthening systems, and building a healthier, safer West Africa.



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Executive Summary



Investing in Lassa Fever Research Now to Inform Policies for Equitable Vaccine Introduction by 2030

Lassa fever remains a deadly and largely overlooked threat, with an estimated 100,000 to 300,000 infections and up to 10,000 deaths annually—figures that likely underestimate the true burden. Endemic across West Africa and driven by zoonotic and human-to-human transmission, the virus disproportionately affects communities with limited health infrastructure. The disease's long-term consequences—including permanent hearing loss, neurological damage, and maternal-fetal complications—impose lasting physical, social, and economic costs.

Despite this burden, Lassa fever remains without an approved vaccine, and policy-relevant evidence to support vaccination is sparse. As promising vaccine candidates approach availability from 2030, the global health community faces a narrow window of opportunity: without robust, context-specific research to inform policy, vaccine deployment may be delayed or less effective.

This research agenda offers a focused response. Developed through a rigorous, inclusive process using the Child Health and Nutrition Research Initiative (CHNRI) methodology, it identifies 13 priority research questions across four key domains:

- Vaccine uptake and acceptance
- Epidemiological understanding
- Vaccine clinical parameters
- Economic impact

To ensure that scientific innovation translates into public health benefits; we call on all partners to:

- Align funding and research initiatives with the identified priorities.
- Coordinate efforts to maximise impact and avoid duplication.
- Embed this agenda within broader regional R&D strategies while establishing mechanisms to regularly flag and respond to any emerging changes in policy-making priorities relevant to Lassa fever vaccines.
- Act now to generate the evidence needed for equitable, effective vaccine introduction.

The time to prepare is now, so that when vaccines arrive, we are ready to protect against Lassa fever where it is needed most.

Case for Investment

Lassa virus causes acute viral haemorrhagic illness and has been listed by the World Health Organization (WHO) as a priority pathogen with epidemic potential for which no or insufficient countermeasures are available.¹ Since its identification in 1969, the virus has become endemic in West Africa, particularly in Benin, Guinea, Liberia, Sierra Leone, and Nigeria.² The virus spreads primarily through the excreta of infected rodents, but human-to-human transmission occurs, notably in healthcare settings.³ Transmission may extend beyond current endemic areas as environmental changes alter the distribution of rodent reservoirs.

It is estimated that 100,000 to 300,000 Lassa fever cases occur annually, with 5,000-10,000 deaths, though these figures may be significantly lower than the actual burden of disease.⁴ Around 80% of Lassa infections go undiagnosed due to mild or asymptomatic infections.⁷ A recent analysis estimates nearly 897,700 cases each year, with Nigeria accounting for half of these.⁵ Recent modeling studies^{5,7} highlight expansion of the Lassa fever endemic zone and populations most at risk across West Africa. In those with severe illness requiring hospitalisation, the case fatality rate can reach 20%.⁶

Long-term consequences of Lassa fever extend far beyond the acute phase as survivors frequently suffer permanent hearing loss, chronic neurological problems, and psychological trauma; sequelae may also occur in those with asymptomatic infections.⁸ These sequelae carry lifelong health, social, and economic costs, particularly in communities with limited access to rehabilitative care or social support systems. In addition, Lassa fever is exceptionally dangerous during pregnancy, with maternal mortality rates exceeding 80% in the third trimester and extremely high rates of fetal loss.⁹

Experience from other regionally-focused diseases, such as Chikungunya, shows that the absence of context-specific, policy-relevant research delays critical decision-making, even when vaccines are available for use. In a changing global health and funding ecosystem, characterised by increasing fiscal constraints, it is even more critical to ensure investments are directed toward the most pressing evidence needs and aligned across all stakeholders. As Lassa vaccine candidates move toward availability from 2030, there is an urgent need to generate policy-relevant evidence to inform investment and rollout decisions. This includes quantifying the economic burden of Lassa fever - covering productivity losses, treatment costs, and potential savings from vaccination - to strengthen the case for investment and equitable access.

To ensure timely use of vaccines, it is essential to invest in research to generate relevant evidence to make informed policy recommendations and vaccination strategies alongside the clinical development of vaccine candidates.

Goal for the Research Agenda

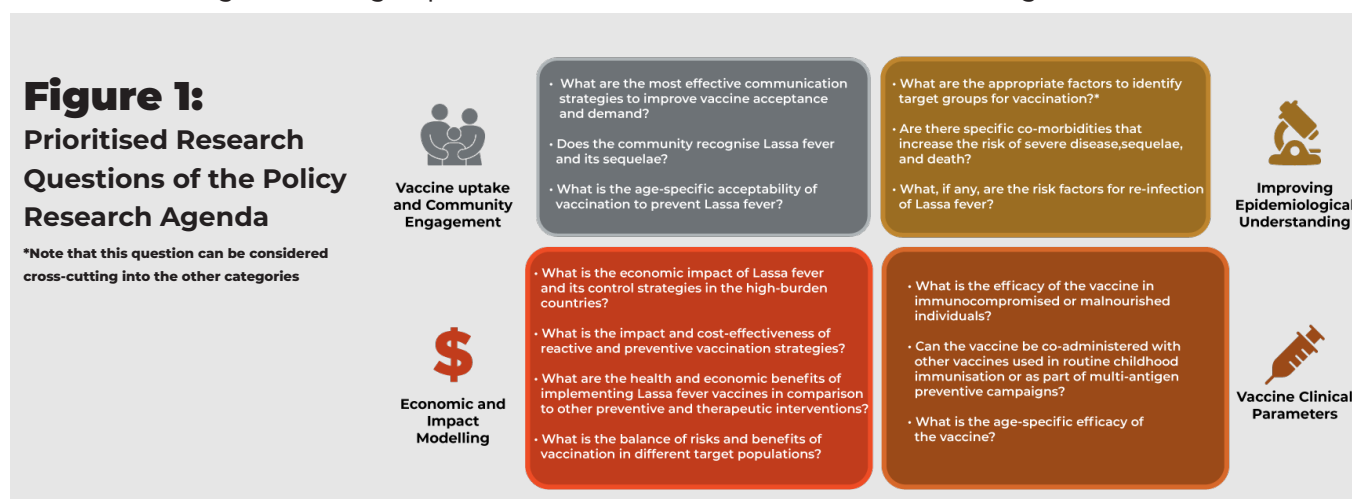
This research agenda aims to guide and mobilise efforts toward generating timely, relevant, and actionable evidence to support Lassa fever vaccine policy- and decision-making on introducing and implementing vaccination.

Target Audience

- Researchers and academic institutions seeking to identify high-impact, policy-relevant questions that require research.
- Funders and donors aligning investments with the most pressing policy- and decision-making evidence needs.
- National governments and regional bodies that are preparing for future Lassa fever vaccine introduction and implementation.
- Implementing partners and global health actors who are working to integrate Lassa vaccination into broader health strategies.

Identified Priorities

Using the Child Health and Nutrition Research Initiative (CHNRI) methodology, 13 research questions were prioritised based on answerability, equity, feasibility, potential for translation and relevance to policy- and decision-making. These are grouped under four thematic areas as shown in the figure below.



Several of the prioritised research questions could be addressed within a single, well-designed study. The potential grouping of the research questions could result in cost and time savings. Below are some potential ways to bundle certain research questions.

- A prospective cohort study could assess the key risk factors for re-infection, duration of protection following natural infection, and the severity of the disease following re-infection.
- A multi-centric vaccine trial with adequate sample size and statistical power could evaluate age-specific vaccine efficacy, vaccine efficacy differences between naïve and exposed populations, and vaccine efficacy considering different virus genotypes.
- A qualitative study could explore awareness of Lassa fever and its sequelae and vaccine uptake and acceptability across different age groups, as well as demographic groups, including pregnant women.
- A comprehensive economic and impact model could explore the economic impact of the disease, the risks and benefits of vaccination, including different target populations and strategies. Bundling questions provides cost-efficiency and may generate richer, context-sensitive insights for decision makers.

How was this Research Agenda Developed?

We used the Child Health and Nutrition Research Initiative (CHNRI) method to prioritise research questions.^{10,11} The CHNRI method is a structured research prioritisation methodology that identifies and ranks critical knowledge gaps. CHNRI was chosen largely due to its ability to involve all relevant stakeholders, but also because it is a transparent and replicable process. To apply the CHNRI methodology, we took four steps.

A dedicated Policy Research Working Group (PRWG), convened by WAHO as part of the Lassa vaccine coalition with support from CEPI, and MMGH Consulting, oversaw the development of the research agenda. The PRWG included representatives from government agencies, regional health institutions, academia, and immunisation partners, ensuring regional leadership and relevance throughout the process.

Step 1: Adapting the CHNRI context and criteria to Lassa fever

The CHNRI context and criteria were developed and finalised and are listed in Table 1.

Context	Description
Who (population of interest)	* All stakeholders who may hold policy and decision-making responsibilities related to Lassa fever vaccine introduction and implementation.
Where (geographical scope of research)	† Global, West African region and national country levels.
When (Time scale)	‡ Present day to 2030
What outcome (Proposed impact of interest)	Evidence-based policy and decision-making on the use of Lassa vaccines
Criteria	Description
Answerability	Do you believe it is possible to answer this question through research?
Effect on equity	Do you believe that the research question and its outputs will contribute to reducing inequities in health?
Potential for translation	Do you believe that the research question and its outputs will likely be translated into evidence-based policy and decision-making on Lassa fever in West Africa?
Relevance to context	Will the research question and its outputs contribute to addressing relevant evidence gaps related to policy and decision-making on Lassa fever in West Africa?
Feasibility within context	Do you believe designing and conducting the proposed research in the communities most affected by Lassa fever is feasible?

* Note that while the Research Agenda will not focus on implementation, we have included those stakeholders involved in implementation as their views remain important to policy- and decision-makers

† Given the early stage of vaccine development, it is important to capture potential policy implications at the global, regional, or national levels

‡ The Lassa fever vaccine is anticipated to become available to countries in 2030

Step 2: Identifying evidence gaps and research questions for inclusion in the scoring process

A rapid assessment of literature and interviews was conducted to identify key evidence gaps, which were formulated into research questions for inclusion in the prioritisation process. The final set of research questions was developed and selected through iterative consultation between the project team, the members of the PRWG, and Lassa experts. Twenty-nine questions were selected for the prioritisation exercise (See Annex).

Some questions were not included if there was already an existing study or planned clinical trial being conducted to address the research question, if research questions were on operational feasibility that required more certainty on the vaccine characteristics, or if questions were not related to vaccines.

Step 3: Scoring of research questions

An online survey with an offline Excel option was disseminated and over 230 experts and stakeholders on Lassa fever scored each research question considering the CHNRI context and criteria. Stratified analyses were conducted considering the level of Lassa fever knowledge, organisational affiliation, and country location, which did not reveal any significant differences amongst the various stakeholder groups.

Step 4: Determining key research questions to prioritise

The results of the CHNRI analysis, including the research priority score (RPS) and average expert agreement (AEA), were shared with the PRWG for feedback and discussions and different options were considered to prioritise the research questions. The PRWG felt it was important to capture government feedback as well as to include research questions across all subject categories; this resulted in the selection of 14 research questions representing each of the categories.

Call to action

To ensure this agenda leads to impact, researchers, funders, national governments, regional bodies, implementing partners, and global health actors must:

- Mobilise resources and ensure that funders align around these research priorities to close evidence gaps before vaccines are available.
- Link ongoing and planned Lassa fever research to this agenda, ensuring complementarity and efficiency.
- Embed this agenda within a comprehensive regional R&D plan, ensuring consistency across research sites.
- Support and contribute to ensuring a live online dashboard that serves as a one-stop source of all research generation in the region against the relevant priorities identified

This agenda should serve to identify what we must act on now to ensure that the promise of Lassa vaccines translates into strong policy- and decision-making for those who need it most.

As the coordinating institution for regional health research and policy harmonisation in West Africa, the West African Health Organisation (WAHO) leads efforts to align national policies, strengthen regional research capacity, and promote collective action toward the highest attainable health standards across ECOWAS Member States.

WAHO will guide the translation of this agenda into regional and national action. This agenda directly aligns with WAHO's Regional Health Research Agenda, the West Africa R&D Platform, and the One Health Strategy, ensuring coherence across preparedness and vaccine development efforts.

WAHO will work closely with national public health institutes (NPHIs) and ministries of health to integrate these research priorities into national plans, supporting uptake through regulatory, ethical, and programmatic pathways. This coordination will strengthen regional ownership and accelerate progress toward equitable Lassa fever vaccine introduction by 2030.

Acknowledgements

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We are also grateful for the 235 individuals who generously shared their time and expertise to complete the CHNRI survey and score the research questions. Their insights were instrumental in ensuring this agenda reflects the diverse perspectives and priorities of the Lassa fever community.

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Annexes

Annex A: List of full research questions, RPS score, AEA scores, and category

#	Research question	RPS	AEA	Category
1	What are the appropriate factors to identify target groups for vaccination?"	92%	85%	Epidemiological
2	Are there specific co-morbidities that increase the risk of severe disease, sequelae, and death?	91%	85%	Epidemiological
3	What is the economic impact of Lassa fever and its control strategies in the high burden countries?	91%	84%	Economic impact
4	What are most effective communication strategies to improve vaccine acceptance and demand?	91%	84%	Uptake and acceptance
5	Does the community recognize Lassa fever and its sequelae?	90%	82%	Uptake and acceptance
6	What is the efficacy of the vaccine in immunocompromised or mal-nourished individuals?	90%	82%	Vaccine clinical trial
7	What is the impact and cost effectiveness of reactive and preventive vaccination strategies?	90%	82%	Economic impact
8	What is the age-specific acceptability of vaccination to prevent Lassa fever?	90%	82%	Uptake and acceptance
9	Can the vaccine be co-administered with other vaccines used in routine childhood immunization or as part of multi-antigen preventive campaigns?	90%	82%	Vaccine clinical trial
10	What is the health and economic benefit of implementing Lassa fever vaccines in comparison to other preventive and therapeutic interventions?	89%	81%	Economic impact
11	What is the age-specific efficacy of the vaccine?	89%	81%	Vaccine clinical trial
12	What is the balance of risks and benefits of vaccination in different target populations?	89%	81%	Economic impact
13	What, if any, are the risk factors for re-infection of Lassa fever?	89%	80%	Epidemiological
14	In areas where there is predominantly human-to-human transmission does the vaccine provide herd immunity?	89%	80%	Vaccine clinical trial
15	What is the acceptability of vaccination to prevent Lassa fever during child bearing years and during pregnancy?"	88%	79%	Uptake and acceptance
16	What are the appropriate diagnostics to estimate vaccine effectiveness and impact?	88%	79%	Vaccine clinical trial
17	What proportion of cases are a result of mother-to-child transmission?	88%	79%	Epidemiological
18	Does the efficacy of the vaccine differ between naïve populations (including travelers to endemic areas) and those with pre-existing antibodies and/or previous infection?	88%	78%	Vaccine clinical trial
19	What proportion of cases are a result of human-to-human transmission?	88%	80%	Epidemiological
20	Does the seasonality of the disease influence vaccination strategy?	88%	80%	Epidemiological
21	Can the vaccination of women during child bearing years and pregnant women provide protection during infancy?	88%	77%	Vaccine clinical trial
22	Does vaccine efficacy or effectiveness vary between different virus genotypes?	87%	78%	Vaccine clinical trial
23	What is the duration of protection following natural infection?	87%	77%	Epidemiological
24	What is the duration of Lassa fever viral persistence in body fluids (e.g., semen, breast milk, ocular fluids, saliva, tears)?	86%	78%	Epidemiological
25	Is the severity of disease lower following re-infection?	85%	75%	Epidemiological
26	For human-to-human transmission, what is the reproductive number (R0)?	84%	74%	Epidemiological
27	What are the differences in the severity of disease caused by different lineages?	84%	73%	Epidemiological
28	What is the age-specific exposure rate to the Lassa fever virus in children?	84%	74%	Epidemiological
29	What is the probability of Lassa virus reactivation from sanctuary sites within the body after initial recovery?	80%	67%	Epidemiological



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