PRIORITIZATION OF A LASSA FEVER VACCINE IN ENDEMIC COUNTRIES:
A scoping review and key informant perspectives

Christopher da Costa, MD, PhD

Takemi Fellow in International Health | Disease Program Leader, R&D, Coalition for Epidemic Preparedness Innovations (CEPI)

HARVARD T.H. CHAN SCHOOL OF PUBLIC HEALTH | TAKEMI PROGRAM IN INTERNATIONAL HEALTH

INTRODUCTION

Lassa fever (LF), a viral hemorrhagic illness endemic in West Africa, causes an estimated 5000 fatalities annually. LF vaccines are currently in development and not yet licensed for use. Factors that influence prioritization of a future licensed vaccine by healthcare policy decision-makers in affected countries, in the context of competing priorities, are currently unclear. A scoping literature review and Key Informant interviews were conducted to provide data on such factors.

OBJECTIVES

- To determine the factors influencing decision-making by policymakers on prioritization of Lassa Fever vaccines procurement in affected countries.
- To determine the perceived barriers to the prioritization of Lassa Fever vaccines procurement.
- To determine Lassa Fever vaccine characteristics considered enablers for the prioritization of their procurement.

METHODS

Scoping Literature Review:

- Literature search of bibliographic databases, guided by the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) Scoping Review Extension recommendations (Tricco AC et al., 2018).
- Target duration: 10-year period from 2014 to 2024 during which Lassa fever vaccine development has accelerated.
- Search restricted to articles published in the English language.
- Search terms used: “Lassa Fever vaccine introduction”, ‘Lassa Fever vaccine adoption”, “Lassa fever vaccine prioritization” and “Lassa Fever vaccination policy”.
- Descriptive analysis of data.

Key informant Interviews (KIIs):

- Semi-structured interviews of officials from government agencies and non-governmental organizations (NGOs) that influence healthcare policy decision-making, using a questionnaire with open-ended questions.

Data analysis for KIIs:

- A thematic analysis was conducted, using the Burchett framework for new vaccine introduction as a guide (Burchett HED et al., 2012).

Key Findings

Number of published articles by year in bibliographic databases

Year	Bibliographic Databases							
	CINAHL (via Science Direct)	Cochrane Library	Embase	Google Scholar	Psych Info	PubMed	Web of Science	Max**
2014	0	0	0	0	0	0	0	0
2015	0	0	0	0	0	0	0	0
2016	0	0	0	0	0	0	0	0
2017	0	0	0	0	0	0	0	0
2018	0	0	0	1	0	1	1	1
2019	1	0	1	1	2	0	0	2
2020	1	2	0	1	1	0	0	2
2021	2	0	0	1	0	0	1	2
2022	1	0	0	0	1	2	1	2
2023	1	0	1	2	0	2	0	2
2024*	0	0	0	1	1	0	0	1
Total	6	2	2	7	5	5	3	

- Year-to-date as of April 12, 2024.
- ** Maximum number for a single database

Results from the Key Informant Interview Questionnaire#

1. What factors will be taken into consideration when deciding on prioritizing the procurement of Lassa Fever vaccines?	
Cost/funding/sourcing and financing	●●●●●
Case fatality rate	●●●
Efficacy/level of protection	●●●
Vaccine safety	●●●
Burden of disease/ disease prevalence	●●●
Cold chain requirements/storage	●●●

2. What vaccine characteristics are considered attractive to encourage and facilitate a decision to procure and eventually deploy Lassa Fever vaccines?	
Vaccine efficacy/level of protection	●●●●●●
Long-lasting Immunity/ durable immune response	●●●●
Vaccine safety	●●●
Cold chain requirements/thermal stability	●●●
Target population (to children, pregnant and lactating women, HIV)	●●
Dose regimen – one or at most two doses/ 2nd dose with long-term boosting capability	●●

3. What are the perceived barriers to the prioritization of Lassa Fever vaccine procurement and deployment?	
Affordability/Financial burden/Budgetary constraints/ Funding sources/competing resource allocation	●●●●●●●
Accessibility/Infrastructure	●●
Clarity of communication to the public/ information management	●●

4. What resources would facilitate the prioritization of Lassa Fever vaccine procurement and deployment?	
Funding/Financial resources	●●●
Availability of data on disease burden, disability morbidity, mortality	●●
Active country involvement in clinical trials/data and information on Lassa Fever vaccine trials/Clinical trials outcomes	●●
Vaccine logistics	●●

Each dot (●) represents one Key informant’s response. Only responses by at least 2 informants are included.

CONCLUSIONS AND RECOMMENDATIONS

1. There is very limited evidence from published literature to inform decision-making for prioritization of Lassa Fever vaccine procurement in affected countries.
2. Further research is warranted to validate the perceived barriers to Lassa Fever vaccine procurement and key enabling factors for their prioritization among competing health care demands.
3. Given the high case fatality rate of Lassa Fever, a major consideration is that the vaccine is shown to be safe, highly efficacious, and provide long-lasting immunity.
4. Affordability is also a major concern, so financial support will be needed to facilitate the adoption of Lassa Fever vaccines.

ACKNOWLEDGEMENTS

Professor Veronika Wirtz and Dr. Jesse Bump were project advisors. Professor Aya Goto provided helpful suggestions. Oyeronke Oyebanji (CEPI), Sourabh Sobti (CEPI), and Dr. Stephen B. Kennedy (PREVAIL, Monrovia, Liberia) all facilitated the conduct of this research.

No funding support was provided. No human subjects were involved in this research.

REFERENCES

1. Tricco, AC et al. (2018). "PRISMA Extension for Scoping Reviews (PRISMA-ScR): Checklist and Explanation. Ann Intern Med. 169:467-473.
2. Burchett , HED et al., (2012) New vaccine adoption: a qualitative study of national decision-making processes in seven low- and middle-income countries. Health Policy and Planning. 27: ii5-ii16.