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Systematic Review on Lassa Fever Vaccine Development Efforts in Africa – 2000 to 2024

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KEY MESSAGES

1. Despite decades of outbreaks, no licensed vaccine exists.
2. African involvement is growing, with Nigeria, Sierra Leone, and Liberia engaged in clinical research.
3. While Lassa vaccine development is progressing, substantial gaps in infrastructure, funding, and community engagement continue to hinder scale-up in Africa.

ABSTRACT

Introduction. 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.

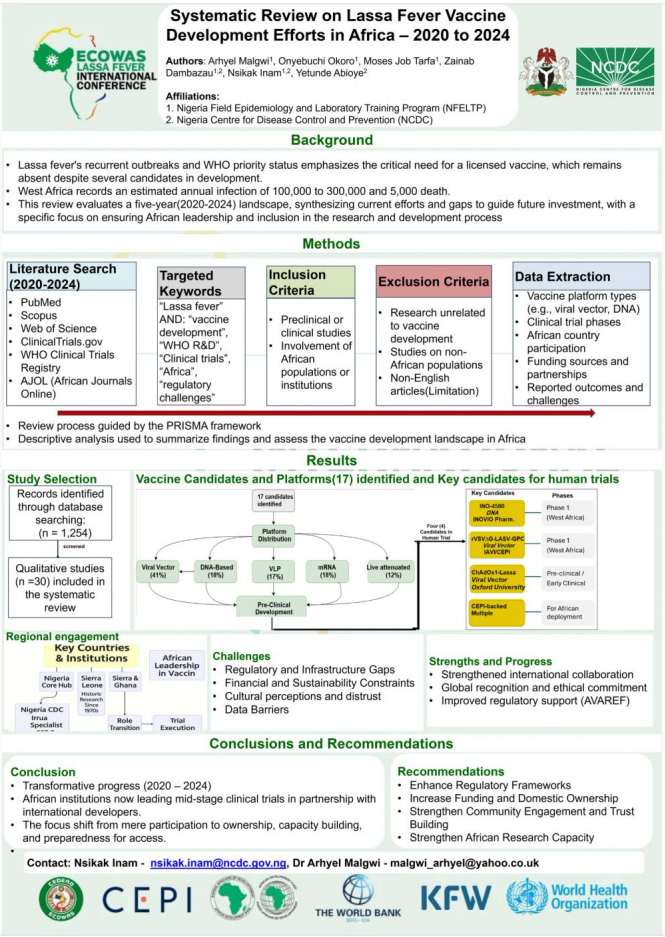
Materials and methods. A systematic review was conducted using databases such as PubMed, Scopus, Web of Science, WHO Clinical Trials Registry, and African Journals Online, focusing on literature from 2000 to 2024. Inclusion criteria comprised studies on Lassa vaccine candidates under preclinical or clinical 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.

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