Proceedings of the ECOWAS 2nd Lassa fever International Conference in Abidjan, September 8 – 11, 2025

Socio-demographic, climatic, ecological and clinical predictors of Lassa fever virus positivity in Nigeria: Analysis of multi-year national surveillance data, 2018-2021

Stephen Eghelakpo Akar[1,2,3,&], William Nwachukwu[3], Sunbo Oludare Adewuyi[1], Anthony Agbakizua Ahumibe[1,2], Iniobong Akanimo[3], Oyeladun Okunromade[3], Olajumoke Babatunde[3], Chikwe Ihekweazu[4], Mami Hitachi[2], Kentaro Kato[2], Yuki Takamatsu[5], Kenji Hirayama[6], Satoshi Kaneko[2]

[1]Graduate School of Biomedical Sciences, Nagasaki University, Nagasaki, Japan, [2]Department of Eco-epidemiology, Institute of Tropical Medicine, Nagasaki University, Nagasaki, Japan,[3]Nigeria Centre for Disease Control and Prevention, Abuja, Nigeria, [4]WHO Hub for Pandemic and Epidemic Intelligence, Berlin, Germany, [5]Department of Virology, Institute of Tropical Medicine, Nagasaki University, Nagasaki, Japan, [6]School of Tropical Medicine and Global Health, Nagasaki University, Nagasaki, Japan

[&]Corresponding author: Stephen Eghelakpo Akar, Graduate School of Biomedical Sciences, Nagasaki University, Nagasaki, Japan. **Email**: steve.eghelakpo.akar@gmail.com

Citation: Stephen Eghelakpo Akar et al., Socio-demographic, climatic, ecological and clinical predictors of Lassa fever virus positivity in Nigeria: Analysis of multi-year national surveillance data, 2018-2021. Journal of Interventional Epidemiology and Public Health. 2025; 8(ConfProc5) :00096.

DOI: https://doi.org/10.37432/JIEPH-CONFPRO5-00240

LINK: https://afenet-journal.org/socio-demographic-climatic-ecological-and-clinical-predictors-of-lassa-fever-virus-positivity-in-nigeria-analysis-of-multi-year-national-surveillance-data/

Received: 25/05/2025 **Accepted:** 09/07/2025 **Published:** 18/08/2025

Keywords: Lassa fever, epidemiology, viral positivity, predictors, Nigeria

This is part of the proceedings of the ECOWAS 2nd Lassa fever International Conference in Abidjan, September 8 – 11, 2025

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.