

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.