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Challenges of conducting longitudinal studies with blood draws in low-resource settings: Lessons from the ENABLE 1.0 Lassa fever epidemiological study in Edo State, Nigeria

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Introduction

Longitudinal studies requiring repeated blood collection pose numerous challenges. These challenges include participant attrition, logistical difficulties in sample storage and transport, and cultural concerns surrounding blood collection. From December 2020 to June 2023, Nigeria participated in the multi-country ENABLE 1.0 Lassa fever (LF) cohort study, investigating the incidence and prevalence of LF. This paper outlines the operational challenges encountered and mitigation strategies adopted during the study at Irrua Specialist Teaching Hospital (ISTH), Edo State.

Methods

A total of 5,035 and 1,133 consenting participants from seven clusters were enrolled into disease and infection cohorts of the study and followed up through alternate home visits and calls biweekly for 30 months, with semi-annual sampling for seroconversion applied to the infection cohort. Febrile participants were sampled in designated health facilities. Diagnostic testing for LF and treatment of confirmed participants took place at ISTH. The communities were fed back on study findings at the study closure.

Results

Sample transportation from some clusters was hindered by poor road conditions, limited local transport, and rising petrol costs. Mitigation strategies included a hub-and-spoke transport model, batch scheduling of collections, coordinated travel to conserve petrol, and reallocation of resources. Participant fatigue and other concerns, including discomfort with repeated symptom checks and fear of blood collection, were addressed through trust-based communication, engagement of community liaison officers, phlebotomist trainings, and modest incentives. Attrition resulted from

relocation, death, and refusals. The latter was mitigated through flexible follow-up, collection of collateral contact information, and sustained community engagement to dispel rumours and cultural misconceptions.

Conclusion

The ENABLE 1.0 study experienced operational challenges that were mitigated by adaptable context-specific strategies. Future research in the West African Sub-Region should prioritise consistent community engagement, culturally sensitive communication, flexible operational planning, and the active involvement of local stakeholders to ensure successful study implementation.