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

Establishing an external quality assurance (EQA) system for Lassa fever testing in Nigeria

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Citation: Nsonghomanyi Fritz Roland Fonkeng et al. Establishing an external quality assurance (EQA) system for Lassa fever testing in Nigeria. Journal of Interventional Epidemiology and Public Health. 2025; 8 (Conf Proc 5): 00034.

DOI: https://doi.org/10.37432/jieph-confpro5-00034

LINK: https://afenet-journal.org/establishing-an-external-quality-assurance-eqa-system-for-lassa-fever-testing-in-nigeria/

Received: 11/05/25 **Accepted:** 09/07/25 **Published:** 19/08/25

Keywords: External quality assurance, Lassa fever, diagnostic accuracy, laboratory quality, Nigeria, CT values

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

Introduction

Lassa fever is a viral hemorrhagic disease endemic in West Africa, capable of progressing from mild illness to multiorgan failure. During the 2018 outbreak in Nigeria, 423 confirmed cases were recorded with a case fatality rate of 25%. Given the absence of commercial diagnostic assays for Lassa virus, ensuring test accuracy through quality assurance systems is critical. External Quality Assurance (EQA) programs serve to evaluate and enhance the reliability of laboratory diagnostics by providing standardized, blinded testing materials.

Methods

An EQA program was initiated using Lassa fever-positive samples with known cycle threshold (CT) values. These samples were pooled, heat-inactivated, blinded, and distributed to all active testing laboratories. Laboratories conducted testing according to their routine procedures. Concordance between expected and reported results was used to evaluate test performance.

Results

In the first round, 16 panels were distributed and 13 tested, yielding a 92% concordance rate. In the second round, all 15 distributed panels were tested, achieving a 100% concordance rate. These results indicate both progress in testing quality and the responsiveness of labs to continuous performance monitoring.

Conclusion

The EQA system has proven effective in benchmarking diagnostic quality and identifying areas for capacity strengthening. Annual implementation of this program will support ongoing quality improvement, guide targeted training interventions, and serve as a tool to evaluate the readiness of new laboratories for Lassa fever testing.