

2002

Evaluating the Impact of a Digital Dashboard on the Timeliness of Outbreak Detection for Epidemic-Prone Diseases in Sierra Leone, 2002

S, a, m, u, e, l, B, a, n, g, u, r, a, ,, I, b, r, a, h, i, m, S, e, s, a, y, ,, F, a, t, m, a, t, a, K, a, m, a, r, a

DOI: <https://doi.org/10.5281/zenodo.18531701>

| Abstract

Surveillance systems for epidemic-prone diseases in many low-resource settings rely on paper-based reporting, which causes delays in data aggregation and analysis. In Sierra Leone, these delays can hinder the timely detection of outbreaks, with serious implications for public health. Digital tools for real-time data visualisation offer a potential means to address this systemic issue. This working paper evaluates the impact of a digital dashboard for real-time monitoring on the timeliness of outbreak detection within Sierra Leone's disease surveillance units. The primary objective was to determine if the dashboard reduced the time between initial case reporting and the issuance of an official outbreak alert. The study used a mixed-methods, quasi-experimental design. Quantitative data on reporting timeliness were collected from surveillance records before and after the dashboard's implementation across a sample of district health units. Qualitative data were obtained through key informant interviews and focus group discussions with surveillance officers to understand user experiences and operational challenges. Preliminary analysis indicates a reduction in the median time to alert after the dashboard was implemented. Qualitative data highlighted that the dashboard improved data completeness and visual clarity for decision-makers. However, frequent challenges included inconsistent internet connectivity and variable user proficiency, which moderated the tool's

overall impact. The digital dashboard demonstrates potential for improving outbreak detection timeliness within Sierra Leone's surveillance system. Its effectiveness depends not only on technological functionality but also on reliable supporting infrastructure and adequate user training. Future implementations should prioritise comprehensive training programmes and consider a phased roll-out. Investment in stable internet infrastructure at surveillance units is essential. Further research should explore the dashboard's cost-effectiveness and its impact on response outcomes beyond detection timeliness. digital health, surveillance, outbreak detection, real-time monitoring, Sierra Leone This evaluation provides evidence on the operational impact of a digital dashboard in a low-resource surveillance context, highlighting critical interdependencies between technology, infrastructure, and human capacity for improving public health practice.
