Vaccine Preventable Disease Surveillance systems in **Sierra Leone**

Assessment of the implementation and use of VPD surveillance systems in Africa.

July 2025

KEY FINDINGS

- VPD systems in use: DHIS2
- Dual entry on paper-based and digital tools
- Case-based surveillance

Analysis Overview

Sierra Leone's vaccine-preventable disease (VPD) surveillance system uses a dual-entry model, combining paper-based and digital tools, with four digital systems currently in use. A dedicated national focal point oversees weekly data reporting, which is consistently submitted on time and shared with WHO AFRO. The system is governed by a formal structure and aligned with the national HMIS digital strategy. Funding comes from multiple donors, and although there is a costed work plan, there is no dedicated funding for software maintenance, infrastructure, or hardware support. The system produces essential reports and dashboards at both national and sub-national levels, with data actively used for planning and resource allocation.

Case-based surveillance is operational nationwide and is not limited to specific diseases. However, both case-based and aggregated data are affected by quality and timeliness issues. While rural and urban health facilities (1237 rural and 309 urban) have access to the system, disparities in infrastructure and staffing exist. All data entry is done via mobile devices, no sites use computers, and while end users are provided with mobile devices and data, there are major differences in the reliability of infrastructure across regions. Though policies exist to promote equitable access, the shortage of adequately skilled MOH staff to maintain hardware and connectivity remains a barrier.

The VPD system is integrated with WHO AFRO and at least two other health information systems, but Sierra Leone lacks a national interoperability framework and does not use international data exchange standards such as HL7 FHIR or ADX. The MOH team responsible for interoperability is under-resourced and relies heavily on external support, with no routine training or assessments in place. Despite these challenges, the system uses a metadata dictionary, mostly up-to-date facility hierarchies, and WHO AFRO indicators. Stakeholders express overall satisfaction and envision a future in which all public and private health facilities report through a government-sustained digital system. Sierra Leone's goals of strengthening digital health and its proactive engagement in regional data sharing reflect a strong commitment to public health surveillance across West Africa.

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Foundational	Developing	Established	Not Applicable or No Data

Domain/Theme	Sub-domain	Maturity Level
Governance and Strategic Alignment	Existence of a formal governing body	2
	Existence of a Digital Health Strategy	2
	Sustainable funding	2
	Equity infrastructure	1
	Equity policies (rural/urban)	2
	Submission to WHO AFRO regional system	2
Workforce/Technical Capacity	Dedicated VPD surveillance officer	2
	Admin/monitoring team in place	1
	Availability of monitoring tools/SOPs	1
	Software maintenance team in place	
	Integration/interoperability tech capacity	0
End-user Readiness	End-user satisfaction	2
	End-user training	1
Infrastructure Readiness	Availability of computers	0
	Mobile devices and mobile data access	2
	Stable power/internet infrastructure	1
	Capacity to maintain infrastructure	1
	Infrastructure disparities	1
System Lifecycle and Localization	Length of time system has been in use	2
	Multilingual software maturity	2
	VPD surveillance system transition	0
	User support during system transition	0

DIGITAL HEALTH SYSTEMS TO SUPPORT VPD SURVEILLANCE IN **SIERRA LEONE**

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Foundational	Developing	Established	Not Applicable or No Data

Domain/Theme	Sub-domain	Maturity Level
Interoperability	Integration with WHO AFRO system	0
	Integration with national HIS	2
	Interoperability standards use (FHIR, ADX)	2
	Existence of national interoperability framework	2
Data Standards and Data Quality	Metadata dictionary	2
	Org units structure	0
	Compliance with WHO AFRO standardized indicators	2
	Data quality governance	2
	Data entry/management training	0
Data Use and Reporting	Data reporting needs	0
	Data sharing practices	2
	Timeliness and quality of CBS data	0
	Timeliness and quality of aggregate data	2
	Case-based data security compliance	2

Use and limitations of the maturity model

The maturity model provides a framework for identifying strengths and gaps in Sierra Leone's VPD surveillance system. It covers key domains like governance, data quality, and infrastructure. However, it simplifies complex realities and may overlook regional variation or the interplay between paper based and digital tools. Results should be interpreted with field insights and stakeholder input.

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