



Vaccine Preventable Disease Surveillance systems in Rwanda

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

The vaccine-preventable disease (VPD) surveillance system in Rwanda is well-established, with a dedicated national focal point and digital-first data entry approach supported by three digital systems. Data is reported daily and consistently submitted on time, with integration into WHO AFRO reporting mechanisms. Strong governance structures are in place, including a formal governing body, a national HMIS digital strategy, and comprehensive funding arrangements for system maintenance, infrastructure, and hardware. The Ministry of Health (MOH) technical team is adequately staffed for system support and performance monitoring, although there are no documented processes for backup, disaster recovery, or training assessments for system administrators.

Data quality management is a clear priority, with a formal QA framework, dedicated personnel, and regular training for data entry staff. The system produces relevant reports for national and partially for sub-national use, and there are ongoing efforts to establish formal data sharing agreements. Both case-based and aggregated VPD surveillance are operational, with data being used for national planning and resource allocation. However, case-based surveillance still faces some data quality and timeliness issues. Despite these, the system benefits from standardized metadata, updated organizational hierarchies, and reliable population data from census and surveys.

Access to the system is equitable across all rural and urban facilities (468 each), with no significant disparities in infrastructure, staffing, or mobile device usage. Computers are universally used for data entry, and while end users receive mobile data support, mobile devices are not provided. Infrastructure is generally stable, but there is a shortage of qualified MOH staff to maintain it. Interoperability remains a challenge: while data exchange standards like HL7 FHIR are in use and there is national interoperability guidance, system integration is not yet in place, and the MOH team relies on external support. Rwanda's long-term vision is to build an AI-enhanced, fully integrated real-time surveillance system linking all health system levels for timely decision-making.

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Foundational	Developing	Established	Not Applicable or No Data
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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	2
	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	2
	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	1
	Stable power/internet infrastructure	2
	Capacity to maintain infrastructure	1
	Infrastructure disparities	2
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

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Domain/Theme	Sub-domain	Maturity Level
Interoperability	Integration with WHO AFRO system	0
	Integration with national HIS	0
	Interoperability standards use (FHIR, ADX)	2
	Existence of national interoperability framework	1
Data Standards and Data Quality	Metadata dictionary	2
	Org units structure	2
	Compliance with WHO AFRO standardized indicators	2
	Data quality governance	2
	Data entry/management training	1
Data Use and Reporting	Data reporting needs	2
	Data sharing practices	1
	Timeliness and quality of CBS data	0
	Timeliness and quality of aggregate data	
	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 Rwanda'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.