Vaccine Preventable Disease Surveillance systems in **Ethiopia**

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
- Aggregated data systems
- Case based surveillance system in development

Analysis Overview

The survey of Ethiopia's vaccine-preventable disease (VPD) surveillance system shows that while foundational structures are in place, the system faces several implementation challenges. A dedicated national focal point manages surveillance efforts, and a single digital system is used alongside paper-based methods. Data is reported weekly, shared with WHO AFRO, and aligned with standardized indicators. The program benefits from formal governance structures, a national digital strategy, and multiple funding sources, including government budget lines and donors. The Ministry of Health (MOH) has technical personnel and systems in place for monitoring, backup, and disaster recovery. However, the number of staff is insufficient, and training needs are not regularly assessed or addressed. While a metadata dictionary exists, the organizational hierarchy used for reporting is outdated.

Despite producing useful reports and dashboards at the national level and sharing data with partners, there are limitations. Case-based surveillance is not operational, although digitalization is currently in progress with plans to roll out in the near future. Aggregated surveillance using DHIS2 only covers a few outbreak-prone diseases.

Although data quality assurance frameworks and responsible staff are in place, there are no regular data quality training sessions or evaluations of training effectiveness. Some population data inaccuracies exist but are addressed through triangulation with multiple sources. While the system demonstrates utility in planning and coordination, further investments are needed to expand disease coverage, strengthen human resource capacity, and improve data quality practices at all levels.

 Infrastructure challenges such as inconsistent power supply, unreliable internet connectivity, and limited hardware availability hinder effective data entry and reporting in rural settings. These disparities extend to mobile device usage and staffing levels, with rural areas having fewer system administrators and data clerks, which affects the overall system performance. Although policies exist to promote equitable access to surveillance services, the lack of consistent infrastructure remains a critical barrier. Only 60% of sites use computers for data entry, while 40% rely on mobile devices—yet end users are neither provided with mobile devices nor mobile data, further limiting Most sites suffer from unstable infrastructure, preventing timely submission of surveillance data. While MOH staff are present at many facilities, their numbers and skill levels are insufficient to maintain the necessary hardware and connectivity. Despite the challenges, Ethiopia's VPD surveillance system demonstrates a strong foundation to support their long-term vision.

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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	0
	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	2
	Software maintenance team in place	2
	Integration/interoperability tech capacity	0
End-user Readiness	End-user satisfaction	0
	End-user training	1
Infrastructure Readiness	Availability of computers	0
	Mobile devices and mobile data access	0
	Stable power/internet infrastructure	1
	Capacity to maintain infrastructure	1
	Infrastructure disparities	0
System Lifecycle and Localization	Length of time system has been in use	0
	Multilingual software maturity	2
	VPD surveillance system transition	
	User support during system transition	0

DIGITAL HEALTH SYSTEMS TO SUPPORT VPD SURVEILLANCE IN **ETHIOPIA**

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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	0
	Interoperability standards use (FHIR, ADX)	0
	Existence of national interoperability framework	1
Data Standards and Data Quality	Metadata dictionary	2
	Org units structure	1
	Compliance with WHO AFRO standardized indicators	2
	Data quality governance	2
	Data entry/management training	0
Data Use and Reporting	Data reporting needs	2
	Data sharing practices	2
	Timeliness and quality of CBS data	
	Timeliness and quality of aggregate data	
	Case-based data security compliance	

Use and limitations of the maturity model

The maturity model provides a framework for identifying strengths and gaps in Ethiopia'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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