

Vaccine-Preventable Disease Surveillance System Assessment Maturity Model

The maturity model provides a framework for identifying strengths and gaps in a country's vaccine-preventable disease (VPD) surveillance system across eight key domains, each with multiple sub-domains. However, the model simplifies complex realities and may overlook regional variation, country-specific context, and the interplay between paper-based and digital tools. Results should be interpreted along with field insights and stakeholder input.

The maturity model intends to show opportunities for improvements and additional investment or technical assistance and is not intended as a critique of the implementation or system.

Table 1. Maturity Level of VPD Surveillance Systems

Domain /Theme	Sub domain	Indicator Number	Foundational / Not yet established	Developing / In progress	Established / Fully operational
Governance and strategic alignment	Existence of a formal governing body	8	No formal governing body exists to oversee VPD surveillance information system implementation, development, or maintenance.	A formal governance body is planned or being established but is not yet functional.	A formal governance body is fully established and operational, overseeing system implementation, development, and maintenance.
	Existence of a Digital Health Strategy	9	There is no national digital strategy for HMIS.	A draft national digital strategy for HMIS exists but has not yet been approved.	A national digital strategy for HMIS is approved and actively guiding implementation.
	Sustainable funding	10,11,12,65	The VPD surveillance system is funded by a single source, with no long-term financial sustainability plan.	The VPD surveillance system is funded by multiple sources, but funding may be ad hoc or lack a costed workplan.	The VPD surveillance system has a costed workplan and is funded by multiple sources, including dedicated funding for software maintenance.

	Equity policies (rural/urban)	44,45	Significant disparities exist in infrastructure, mobile device access, and/or staffing levels between urban and rural areas, negatively affecting system effectiveness. There are no policies, guidelines, or strategies in place to promote equitable access to VPD surveillance services across rural and urban areas.	Some disparities remain in infrastructure, mobile device access, or staffing between urban and rural areas, which partially affect system performance. Draft or preliminary policies exist that aim to address equity in VPD surveillance access, but they are not yet approved, implemented, or widely applied.	Infrastructure, mobile device access, and staffing levels are equitably distributed across urban and rural areas, with no significant impact on system effectiveness. Approved and implemented policies or strategies are in place to ensure equitable access to VPD surveillance in both rural and urban settings.
	Submission to WHO AFRO regional system	7,57	VPD surveillance data is not available for submission to the WHO AFRO region system.	VPD surveillance is available for submission to the WHO AFRO region system through a manual entry process.	VPD surveillance is available for submission to the WHO AFRO region system automatically through system integration.
Workforce /Technical Capacity	Dedicated VPD surveillance officer	1	There is no designated individual responsible for managing VPD case surveillance at the national level.	Responsibility for managing VPD case surveillance at the national level is shared across multiple individuals or departments, with no clear focal point.	A dedicated individual is formally assigned and actively responsible for managing VPD case surveillance at the national level.
	Admin/monitoring team in place	13,14,17,18	There are no MOH personnel responsible for system administration and monitoring of the VPD Surveillance system, or staffing levels are insufficient. Training needs are likely unmet.	Sufficient MOH personnel are in place for system administration and monitoring, but key technical processes such as backup, restore, disaster recovery, or monitoring tools are not yet implemented or are insufficiently addressed. training needs may not be adequately addressed.	There are sufficient, trained MOH personnel responsible for system administration and monitoring. All key technical tools and processes—including backup, restore, disaster recovery, and system monitoring—are fully in place.

	Availability of monitoring tools/SOPs	15,16	There is no system monitoring tools or processes, and no standard operating procedures (SOPs) for backup and restore processes.	Some system monitoring processes and/or tools are in place, and SOPs for backup and restore exist, but may not yet be tested or routinely followed.	System monitoring tools and processes are fully operational, and backup and restore procedures are in place and tested periodically to ensure readiness.
	Software maintenance team in place	19,20,21	The MOH lacks in-house staff for maintaining the VPD Surveillance System software, and there is no formal service-level agreement (SLA) with a third-party provider for its maintenance	The MOH either has in-house staff responsible for maintaining the VPD Surveillance System software or has a formal service-level agreement (SLA) with a third-party provider for its maintenance. However, high-priority software issues are not always effectively dealt with.	The MOH either has in-house staff responsible for maintaining the VPD Surveillance System software or has a formal service-level agreement (SLA) with a third-party provider for its maintenance. High-priority software issues are effectively dealt with.
	Integration/interoperability tech capacity	59,60,61	No MOH person/team responsible for integrations; MOH team is reliant on external parties to manage or provide support for integrations	MOH team exists with some skills and limited resources but not to a level that can manage all integrations.	MOH team is confident they have the requisite skills and resources to manage all integrations between systems.
End-User Readiness	End-user satisfaction	22	The level of end-user satisfaction with the VPD Surveillance System is currently unknown or is low.	The overall level of end-user satisfaction with the VPD Surveillance System is mostly satisfied.	The overall level of end-user satisfaction with the VPD Surveillance System is very satisfied.
	End-user training	23,24	End users do not receive regular training on the VPD Surveillance Information System	End users receive regular training (when they start using the system or when new system features are introduced)	End users receive regular training (when they start using the system or when new system features are introduced) and training is assessed and improvements made based on the assessment findings.

Infrastructure Readiness	Availability of computers	49	Sites that are capturing or using VPD surveillance data are not sufficiently equipped with computers.	Some sites that are capturing or using VPD surveillance data are equipped with computers.	All or most sites that are capturing or using VPD surveillance data are equipped with computers.
	Mobile devices and mobile data access	51,52	There are not sufficient mobile devices for use with the VPD surveillance system.	End users must use their own mobile devices and/or have to pay for mobile data in order to use the VPD Surveillance system.	End users are provided with computers or mobile devices with mobile data that enables use of the VPD Surveillance system.
	Stable power/internet infrastructure	53	In the majority of sites, the system infrastructure is not stable enough for the users to be able to submit the VPD data when required.	The majority of sites have stable infrastructure but there are major disparities between urban/rural sites or different regions.	In the majority of sites, the system infrastructure is stable enough for the users to be able to submit the VPD data when required.
	Capacity to maintain infrastructure	54	No, there are no MOH staff to maintain hardware and infrastructure at the majority of sites.	There are MOH staff available but not in sufficient numbers and they may not have access to all the skills training or resources they need to be able to effectively maintain the hardware and infrastructure at sites.	There are sufficient MOH staff with the requisite skills and resources to be able to maintain and provide support for the VPD surveillance system at sites.
	Infrastructure disparities	44	There are major disparities in infrastructure, mobile device usage and/or staffing levels between urban and rural areas that impact system effectiveness.	There are some disparities in infrastructure, mobile device usage and/or staffing levels between urban and rural areas that impact system effectiveness.	There are no disparities in infrastructure, mobile device usage and/or staffing levels between urban and rural areas that impact system effectiveness.

System Lifecycle and Localization	Length of time system has been in use	4	Digital VPD surveillance has been in operational use for less than 1 year.	Digital VPD surveillance has been in operational use for 1 to 3 years.	Digital VPD surveillance has been in operational use for over 3 years.
	Multilingual software maturity	56	VPD surveillance system's user interface (UI) and documentation is not available in your preferred languages.	VPD surveillance system's user interface and some documentation is available in your preferred languages.	VPD surveillance system's user interface and all documentation is available in your preferred languages.
	VPD surveillance system transition	55	The system is not currently in transition.	The VPD surveillance system is currently in the process of transitioning from a paper-based system to a digital system.	The VPD surveillance system has completed the transition or is currently in the process of transitioning from one digital system to another digital system.
Inter-operability	Integration with WHO AFRO system	57	VPD surveillance system is not integrated with the WHO AFRO regional system.		VPD Surveillance system is integrated with the WHO AFRO regional system
	Integration with national HIS	58	VPD surveillance system is not integrated with any other information systems.	VPD surveillance system is integrated with one other information systems.	VPD surveillance system is integrated with two or more information systems.
	Interoperability standards use (FHIR, ADX)	62	VPD surveillance system does not use any data exchange standards.		VPD surveillance system uses HL7 FHIR, ADX or another standard to exchange data with other systems.
	Existence of national interoperability framework	63	No national interoperability framework or guidance currently exists.	Draft framework or guidance exists but is not yet approved or is approved but not yet fully implemented.	National interoperability framework or guidance is fully implemented.
Data Standards and Data Quality	Metadata dictionary	25	Do not know if a metadata dictionary exists for VPD		A metadata dictionary does exist for VPD surveillance data.

			surveillance data OR there is no metadata dictionary.		
	Org units' structure	26	The state of the facility organization hierarchy information is not known.	The facility organization hierarchy information is not up to date.	The facility organization hierarchy information is mostly up to date.
	Compliance with WHO AFRO standardized indicators	27	Use of WHO AFRO surveillance indicators is unknown or None of the WHO AFRO surveillance indicators are included in the VPD surveillance system.	Some of the WHO AFRO VPD surveillance indicators are included in the VPD surveillance system.	All of the WHO AFRO VPD surveillance indicators are included in the VPD surveillance system.
	Data quality governance	29,30	There is no dedicated person responsible for data quality management for VPD surveillance data at the national or sub-national level. No formal data quality assurance (QA) framework exists.	There is a dedicated person responsible for data quality management for VPD surveillance data at the national or sub-national level. No formal data QA framework exists, or it is still being drafted.	There is a dedicated person responsible for data quality management for VPD surveillance data at the national or sub-national level and formal data quality assurance (QA) framework exists and has been implemented.
	Data entry/management training	31,32	Staff responsible for data entry and management do not receive regular training on data quality.	Staff responsible for data entry and management do receive regular training on data quality.	Staff responsible for data entry and management receive regular training and training is assessed and improvements made based on the assessment findings.

Data Use and Reporting	Data reporting needs	33,34	The VPD surveillance system does not produce the reports and dashboards needed by the VPD surveillance program at national level.	The VPD surveillance system does produce some of the reports and dashboards needed by the VPD surveillance program at national level.	The VPD surveillance system produces all the reports and dashboards needed by the VPD surveillance program at national level and this information is demonstrably used in the planning and resource-allocation processes.
	Data sharing practices	35,36	No VPD surveillance data is shared with other ministries or international partners.	Data sharing agreements are under negotiation.	VPD surveillance data is shared with other ministries or international partners in accordance with the data sharing agreements in place.
	Timeliness and quality of CBS data	39	There are known issues with data quality and timeliness of the CBS data.	There are some known issues with data quality and/or timeliness of the CBS data.	There are no major issues with data quality and timeliness of the CBS data.
	Timeliness and quality of aggregate data	41	There are known issues with data quality and timeliness of the aggregate data.	There are some known issues with data quality and/or timeliness of the aggregate.	There are no major issues with data quality and timeliness of the aggregate data.
	Case-based data security compliance	38	VPD surveillance data is not case based.	VPD CBS data is not fully compliant with national regulations and policies for data security and privacy for personal identifiable information (PII).	VPD CBS data is hosted on secure servers that are compliant with national regulations and policies for data security and privacy for personal identifiable information (PII).

VPD Surveillance System Assessment Questions and Indicators

Table 2. Questions and indicators for VPD surveillance systems assessment

Thematic Area	Evaluation question	Q#	Question	Indicator #	Maturity Indicator	Indicator description
General	Is there a digital VPD surveillance information system in current use in the country?	1.1	Is there a dedicated person responsible for managing VPD case surveillance at the national level?	1	Presence of a dedicated VPD surveillance officer	Defines if there is a designated person responsible for overseeing VPD surveillance activities at the national level.
		1.2	What type of VPD surveillance system is used in the country? Is it paper-based, digital or a mix of both?	3	Type of surveillance	Determines whether the VPD surveillance is case-based, aggregate, or both.
		1.3	For digital systems, are there one or more VPD surveillance systems currently in use? Please state the number.			
		1.4	How frequently should VPD surveillance data be reported to the national level?	6	Frequency of data reporting	Measures how often VPD data is reported from health facilities to national or regional authorities.
		1.5	Are the VPD surveillance reports available at the specified time intervals noted above?	6	Frequency of data reporting	Measures how often VPD data is reported from health facilities to national or regional authorities.
		1.6	Does the country provide data to the WHO AFRO regional system?	7	Availability of data for submission to WHO AFRO regional system	Determines whether the VPD surveillance data is available for submission to the WHO AFRO regional system.
		For each one of the digital VPD surveillance systems currently in use, please state:				
		1.7	The name of the digital VPD surveillance system (eg: DHIS2, EpiInfo, SORMAS, other)? If other, please provide the name of the software and the name of the software vendor/curator.			
		1.8	How many years (or months) has the digital VPD surveillance system been in use?	4	Length of time system has been in use	Defines how long the digital VPD surveillance system has been in use.
		1.9	Does the digital VPD surveillance system record case-based data, aggregated data, or a mix of both?			

		1.10	Is the data in the digital VPD surveillance system entered at community, facility, district, sub-national or national level or a mix of levels?	5	Level at which data is captured	Determines at which level of data captured in the surveillance system.
Leadership and governance	Is there a governing body overseeing the VPD Surveillance Information System implementation, development and maintenance?	2.1	Is there a formal governing body in place?	8	Existence of a governing body	Measures whether a formal body or committee exists that is responsible for overseeing and prioritizing the development and maintenance of VPD case surveillance system within a country.
Strategy and investment		3.1	Is there a national digital strategy for HMIS?	9	Existence of a national digital health strategy	Indicates whether a comprehensive digital strategy that includes Health Management Information Systems (HMIS) exists at the national level.
		3.2	What is the primary source of funding for the digital VPD surveillance system?	10	Primary source of funding	Measures the extent to which sustainable funding sources have been secured to support the ongoing operation and maintenance of the HMIS.
		3.3	Is there a costed work plan for the digital VPD surveillance system?	11	Availability of a costed work plan	Assesses the presence of a work plan for HMIS that includes detailed budgeting and costing for implementation and maintenance activities.
		3.4	Is there dedicated funding for the software maintenance and further development of the digital VPD surveillance system?	12	Existence of funding dedicated for VPD surveillance system software maintenance	Assess whether there is dedicated funding for the software maintenance and further development of the digital VPD surveillance system.
		3.5	Is there dedicated funding for power and connectivity infrastructure and hardware, including maintenance, repair and replacement costs?	65	Existence of funding dedicated for VPD surveillance system software maintenance	Assess whether there is dedicated funding for power and connectivity infrastructure and hardware, including maintenance, repair and replacement costs
Capacity: MOH	Is there a MOH technical team dedicated to system administration and monitoring of the VPD surveillance information	4.1	Does the MOH technical team have personnel responsible for system monitoring and server management of the VPD surveillance information system?	13	Presence of MOH system administration and monitoring personnel	Assesses whether personnel responsible for managing and maintaining VPD case surveillance system are in place.
		4.2	Is the number of staff in the current MOH technical team sufficient to handle the volume of work and system needs?	14	Adequate numbers of MOH system administration and monitoring personnel	Assesses whether the number of MOH personnel responsible for system administration and monitoring of the VPD case surveillance system are sufficient.

system at the national level?	4.3	Are there processes and tools in place for monitoring system performance and uptime?	15	Availability of system monitoring processes and tools	Evaluates whether there are processes and tools in place for monitoring system performance and uptime.
	4.4	Are there documented backup, restore and disaster recovery processes and tools in place?	16	Availability of system backup, restore and disaster recovery SOPs	Evaluates whether there are documented backup, restore and disaster recovery SOPs.
	4.5	Are training needs for the MOH technical team identified and addressed regularly?	17	Identification of training needs addressed for the MOH system administration and monitoring team	Assesses whether training needs are identified and addressed for VPD case surveillance system users at various levels of the health system.
	4.6	Are training assessments carried out to evaluate the effectiveness of training approaches for system admin staff?	18	Evaluation and improvement of training for system administration team	Measures the regularity and effectiveness of evaluations conducted to improve VPD case surveillance system training programs and outcomes for end users.
Capacity: Technical team	<p>Who is responsible for the software maintenance of the VPD surveillance system (i.e. bug fixes, change requests, minor and major enhancements, technical dependencies management, security updates)?</p> <p><i>If more than one digital VPD surveillance system is in use, please repeat for each system:</i></p>				
	5.1	Does the MOH technical team have in-house personnel responsible for system software maintenance of the VPD surveillance system?	19	Presence of software maintenance personnel in the MOH	Assesses whether the MOH technical team have in-house personnel responsible for system software maintenance of the VPD surveillance system.
	5.2	If no, does the MOH have a formal Service Level Agreement with the entity responsible for the software maintenance of the VPD surveillance information system?	20	Presence of formal agreement with an external entity to provide software maintenance	Assesses whether the MOH has a formal Service Level Agreement with another entity responsible for the software maintenance of the VPD surveillance information system.
	5.3	If no SLA is in place, how are software maintenance issues dealt with (e.g., by the MOH submitting bug reports and new feature requests via the open community process for the VPD surveillance system)?			
	5.4	Are software issues (e.g., bug fixes, enhancements or change requests) resolved within a reasonable time that does not significantly impact the use of the system?	21	Effectiveness of the software maintenance team	Assesses the effectiveness of the software maintenance team to address high priority issues.
Capacity: End users	<p>Are end users adequately</p> <p><i>If more than one digital VPD surveillance system is in use, please repeat for each system:</i></p>				

	trained to use VPD Surveillance Information System? Are end users satisfied using the system?	6.1	Do end-users feel satisfied (comfortable) using the system?	22	Satisfaction of end users	Assesses the satisfaction levels of end users who use the VPD case surveillance system.
		6.2	Do end users receive regular training (e.g., when they start using the system or when new system features are introduced) on the VPD surveillance information system?	23	Training coverage for end users	Assesses whether end users have received regular training on how to use VPD case surveillance system.
		6.3	Are training assessments carried out to evaluate the effectiveness of training approaches for end users and results used to improve training?	24	Evaluation and improvement of training for end users	Measures the regularity and effectiveness of evaluations conducted to improve VPD case surveillance system training programs for end users and outcomes.
Data standardization: Metadata and facility organization hierarchy (org units) and WHO AFRO indicators		7.1	Is there a metadata dictionary that defines the data, including: use of data in indicators, periodicity, geographical designations (urban/rural) etc?	25	Presence of metadata dictionary	Evaluates whether there is a metadata dictionary for the VPD case surveillance system.
		7.2	Is the health facility organizational hierarchy used for reporting (i.e. org units) up to date? Are all facilities represented or are some missing? Is the location hierarchy (district/region or province) correct?	26	Accuracy of organizational unit hierarchy	Assesses the accuracy and structure of the organizational unit hierarchy within VPD case surveillance system, which is crucial for accurate data reporting and analysis.
		7.3	Does the VPD surveillance system use the WHO AFRO standardized indicators?	27	Compliance with WHO AFRO standardized indicators	Assesses whether the VPD surveillance system uses the WHO AFRO standardized indicators.
Population profile	How is population (denominator) data used within the VPD Surveillance Information System?	8.1	What is the source of the population data (denominator data) needed for VPD surveillance to calculate indicators (e.g., census, survey, CRVS system)?	28	Availability and accuracy of population data	Assesses the availability and accuracy of population data and denominators used in VPD case surveillance system for health reporting and analysis.
		8.1.1	If other, please specify.			
		8.2	Are there known inaccuracies or discrepancies in the population data?			
		8.3	If yes, how are these inaccuracies or discrepancies addressed?			
Data quality processes	Are there quality assurance processes in place to ensure the reliability of the data captured and	9.1	Is there a formal data quality assurance (QA) framework in place for the VPD surveillance system?	29	Presence of a data QA framework (the VPD surveillance data)	Is there a formal data QA framework in place for the VPD surveillance system?
		9.2	Is there a dedicated person responsible for overseeing data quality management at the national or sub-national level?	30	Presence of a dedicated data quality officer for VPD surveillance data	Is there a dedicated person or team responsible for overseeing data quality management at the national or sub-national level?

	reported by the VPD Surveillance Information System?	9.3	Are training sessions on data quality conducted regularly (e.g., at least once a year) for staff responsible for data entry and management?	31	Regularity of training sessions conducted for data quality	Assess whether training sessions on data quality are conducted regularly (at least once a year) for staff responsible for data entry and management.
		9.4	Are training assessments carried out to evaluate the effectiveness of training approaches for MOH staff responsible for system integrations?	32	Evaluation and improvement of training on data quality	Measures the regularity and effectiveness of evaluations conducted to improve VPD case surveillance system training on data quality.
Data management and use	Is the data produced by the VPD surveillance information system able to be used effectively?	10.1	Does the VPD surveillance system produce the reports and dashboards needed by the VPD surveillance program at national level?	33	Availability of VPD surveillance reports	Assesses whether the VPD surveillance system produces the reports and dashboards needed by the VPD surveillance program at subnational and national level.
		10.2	Does the VPD surveillance system produce the reports and dashboards needed by the VPD surveillance program at sub-national level?			
		10.3	Are there data sharing agreements in place with other ministries or other partners/organisations?	35	Presence of data sharing agreements	Assesses whether there are data sharing agreements in place with other ministries or other partners/organisations.
		10.4	Is VPD surveillance data shared with other ministries or international partners?	36	Presence of data shared with other entities	Assesses whether VPD surveillance data is currently shared with other ministries or international partners.
		10.5	Is the information provided by the VPD surveillance system demonstrably used in the planning and resource-allocation processes at national level?	34	Use of VPD surveillance data for planning and resource allocation	Assesses whether information provided by the VPD surveillance system is demonstrably used in the planning and resource-allocation processes at national level.
Individual data - Case-based VPD surveillance	Is the case-based surveillance system (CBS) for VPD Surveillance effectively implemented?		Is CBS in operation anywhere in the country?			
		11.1	Is VPD CBS data limited to specific programs/diseases? If yes, please describe.	37	Limitation of VPD CBS data	Determines whether the CBS data is limited to specific programs/diseases.
		11.2	Is VPD CBS hosted on secure servers that are compliant with national regulations and policies for data security and privacy for personal identifiable information (PII)?			
		11.3	Are there data quality issues with the data provided by the CBS system (e.g., partial or missing data, incorrect data, missing codes)?	38	Security and compliance of CBS hosting	Determines whether the CBS data within VPD surveillance system is hosted on servers that meet security and compliance standards. for PII.
		11.4	Are there timeliness issues with the data provided by the CBS system (e.g., data	39	Data quality of CBS data	Assesses whether there are data quality issues and/or timeliness issues with VPD CBS data.

			is only available weeks/months after the case is identified)?			
Aggregate data - VPD Surveillance (IDSR)	Is the aggregated data for VPD Surveillance effectively implemented?		Is data aggregated for VPD surveillance in operation anywhere in the country?			
		12.1	Is the aggregated VPD surveillance data limited to specific programs/diseases?	40	Limitation of aggregated VPD surveillance data	Determines whether the aggregated VPD surveillance data is limited to specific programs/diseases.
			If yes, please describe.			
		12.2	Are there data quality issues with the aggregated data for VPD surveillance (e.g., partial or missing data, incorrect data, missing codes)?	41	Data quality of aggregated VPD data	Assesses whether there are data quality issues and/or timeliness issues with aggregated VPD data.
		12.3	Are there timeliness issues with the aggregated data for VPD surveillance (e.g., data is only available weeks/months after the case is identified)?			
Equitable access	Is the VPD Surveillance Information System accessible and functioning uniformly across both rural and urban areas, ensuring equitable data collection and reporting?	13.1	How many rural health facilities have access to the VPD surveillance system out of the total number of rural health facilities?	42	Measures the percentage of rural health facilities with VPD surveillance system access	Determines the percentage of rural health facilities have access to the VPD surveillance system out of the total number of rural health facilities.
		13.2	How many urban health facilities have access to the VPD surveillance system out of the total number of urban health facilities?	43	Measures the percentage of urban health facilities with VPD surveillance system access	Determines how many urban health facilities have access to the VPD surveillance system out of the total number of urban health facilities.
		13.3	Are there infrastructure disparities (e.g., power, internet connectivity, hardware availability) between rural and urban areas that affect data entry and reporting?	44	Assesses the disparities between rural and urban health facilities related to infrastructure, staffing and mobile device use	Assesses the level of infrastructure disparities (e.g., power, internet connectivity, hardware availability) between rural and urban areas that affect system effectiveness such as data collection and reporting.
		13.4	Is mobile device usage for data entry different between rural and urban areas?			
		13.5	Is there a difference in staffing levels (e.g., system administrators, data clerks) between rural and urban regions that impacts the system's effectiveness?			

		13.6	Are there specific policies or strategies aimed at ensuring equitable access to VPD surveillance for both rural and urban areas?	45	Presence of policies or strategies to address disparities in VPD system access between rural and urban health facilities	Identifies whether there are specific policies or strategies aimed at ensuring equitable access to VPD surveillance for both rural and urban areas.
System security and compliance	Are there adequate security measures in place for the VPD Surveillance Information System?	14.1	Is there a senior-level person in the MOH responsible for VPD Surveillance Information System security?	46	Presence of security officer for VPD surveillance system	Indicates whether a senior-level individual has been designated to oversee the implementation of security policies related to VPD case surveillance system.
		14.2	Is there a documented security policy for VPD surveillance information systems?	47	Existence of a documented security policy	Determines whether there is a formal, documented security policy in place that outlines procedures and protocols for securing VPD case surveillance system data and systems.
		14.3	Is there a documented incident response plan for data breaches?	48	Existence of a documented incident response plan in case of VPD data breach	Assesses whether there is a documented incident response plan for data breaches of VPD surveillance data.
Infrastructure	Is the infrastructure (power, internet connectivity, computer hardware, mobile devices) sufficient to support the operational use of the VPD surveillance information system?	15.1	What percentage of sites where VPD surveillance has been implemented use computers for data entry into VPD surveillance information system?	49	Use of computers for data entry	Measures the extent to which sites use computers to enter data directly into VPD case surveillance system, bypassing paper-based systems.
		15.2	What percentage of end users working on VPD surveillance use mobile devices for data entry into the system?	50	Use of mobile devices for data entry	Measures the extent to which health facilities use mobile devices to enter data directly into VPD case surveillance system.
		15.3	Are end users provided with mobile data?	51	Provision of mobile data	Assesses whether end users are provided with mobile data to use for the VPD surveillance system.
		15.4	Are end users provided with mobile devices?	52	Provision of mobile devices	Assesses whether end users are provided with mobile devices to use for the VPD surveillance system.
		15.5	In the majority of sites, is the system infrastructure (e.g., power and internet connectivity) stable enough for the users to be able to submit the VPD data as per the required intervals (daily, weekly, monthly, quarterly)?	53	Stability of the infrastructure to enable submission of VPD reports	Assesses whether in the majority of sites, the system is stable enough for the users to be able to submit the VPD reports as per the required intervals (weekly, monthly, quarterly).
		15.6	Are there enough MOH staff with the necessary skills and resources to maintain the hardware (computers/mobile devices) and infrastructure (networks, connectivity) at the facilities / sites where VPD surveillance information system is used? (troubleshoot and fix hardware issues,	54	Presence of sufficient MOH staff to maintain infrastructure and hardware	Assesses the presence of sufficient MOH staff to maintain infrastructure and hardware at sites where the VPD surveillance system is installed.

		install and apply antivirus updates, keep networks up and running, etc.)				
VPD surveillance system transition		16.1	Is the VPD surveillance system currently in the process of transitioning from a paper-based system to a digital system?	55	State of system transition	Identifies whether the VPD surveillance system has or is in the process of transitioning from a paper-based system to a digital system or from one digital system to another digital system, and whether end users receive adequate support.
			If yes, please describe which one/s.			
		16.2	Is the VPD surveillance system in the process of transitioning from one digital system to another digital system (e.g., EpiInfo to DHIS2, EpiInfo to SORMAS)?			
			If yes, please describe which one/s.			
VPD surveillance software multilingual maturity	What is the software multilingual capabilities of the VPD surveillance information system ?	16.3	If yes to any of the above, were users adequately prepared and supported during the transition?			
			If more than one digital VPD surveillance system is in use, please repeat for each system.			
		17.1	Is the VPD surveillance system's user interface available in your preferred language/s (e.g., English, French, Portuguese)?	56	VPD surveillance software product multilingual maturity	Assesses whether the VPD software product supports preferred languages in the UI, end user and technical documentation.
		17.2	Is the software user documentation (user manuals, training guides, etc.) available in your preferred languages?			
		17.3	Is the software technical documentation (installation guides, troubleshooting guides, etc.) available in your preferred languages?			
		17.4	What is your preferred language?			
VPD systems interoperability	Does the VPD Surveillance system support interoperability using	17.4.1	Please specify.			
		18.1	Does the system use excel/csv data files to import or export data?	57	State of VPD surveillance system's current integration with WHO AFRO regional system	Determines whether the VPD surveillance system is integrated and exchanging data with the regional WHO AFRO system.

	appropriate data exchange standards?	18.2	Is the VPD surveillance system intergrated with the regional WHO AFRO system?	58	State of VPD surveillance system's current integration with other health information systems	Determines whether the VPD surveillance system is currently integrated and exchanging data with any other health information systems.
		18.3	Is the VPD surveillance system currently integrated with any other health information systems?			
		18.4	Are the MOH technical team responsible for maintaining the integrations or interoperability workflows sufficiently trained? Do they feel confident that they have the neccessary skills and resources to develop and maintain system integrations?	59	MOH technical team responsible for integrations	Assesses whether the MOH technical team responsible for maintaining the integrations or interoperability workflows are sufficiently trained so they feel confident that they have the neccessary skills and resources to develop and maintain system integrations.
		18.5	Are training needs for the MOH technical team responsible for developing and maintaining integration/interoperability, identified and addressed regularly?	60	Identification and training needs addressed for the MOH system integration personnel	Assesses whether training needs are identified and addressed for VPD case surveillance system users at various levels of the health system.
		18.6	Are training assessments carried out to evaluate the effectiveness of training approaches for MOH staff responsible for system integrations?	61	Evaluation and improvement of training for MOH system integration personnel	Measures the regularity and effectiveness of evaluations conducted to improve VPD case surveillance system training programs and outcomes for end users.
		18.7	Does the VPD surveillance system use HL7 FHIR, ADX or any other data exchange standard to exchange data with other infomation systems?	62	Use of interoperability standards	Does the VPD surveillance system use HL7 FHIR, ADX or any other data exchange standard to exchange data with other infomation systems?
		18.8	Is there a national interoperability framework or interoperability guidelines for health informaiton systems?	63	Existence of national interoperability framework or guidance	Determines whether there is a national interoperability framework or interoperability guidelines for health information system.
Overall assessment	Overall level of satisfaction	19.1	Are you satisfied with the VPD surveillance information system?	64	Overall satisfaction with the VPD surveillance system	Assesses the level of overall satisfaction with the VPD surveillance information system.
		19.2	What is your long-term vision for the VPD surveillance system?			
		19.3	Is there anything else you would like to note with regards to the VPD surveillance information system?			