Malaria Information Index

Overview and User Guide

PMI Measure Malaria

September 2023

Malaria Information Index: A Stages Approach for Collaborating, Learning, and Adapting
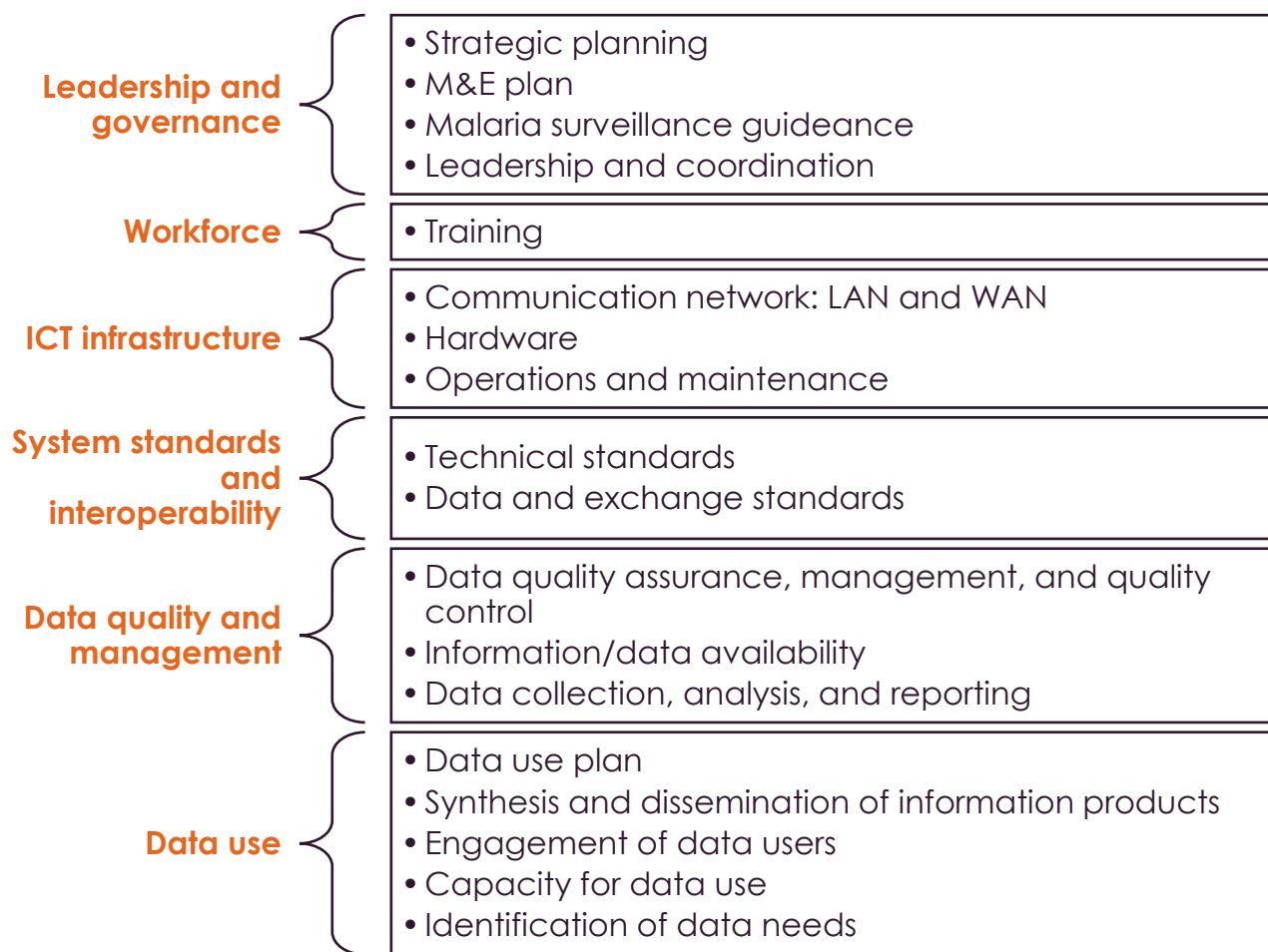
The Malaria Information Index (MII) is a framework for measuring the status of components of surveillance, monitoring, and evaluation (SME). The MII was created to provide internal metrics to help PMI Measure Malaria (PMM) collaborate, learn, and adapt as an organization throughout the project life cycle. Some of the ways PMM has used data from the MII include:

- To track project indicators and document achieved results in countries according to the project's monitoring, evaluation, and learning (MEL) plan
- To identify opportunities for project learning or internal collaboration
- To identify work-planning priorities

Rooted in the same logic as MEASURE Evaluation's health information systems (HIS) Stages of Continuous Improvement and HIS Interoperability Maturity models, the MII applies a scale that spans from 3 to 5 points to 18 components organized into 6 domains (Figure 1). These components provide a holistic picture of malaria HIS and SME system status at the national level in project countries. The scale also includes measures of data quality and data use elements to measure changes in the performance of malaria HIS and SME systems.

Annual applications of the MII provide an opportunity to understand the incremental changes in malaria SME system status and may be used over the life of a project to understand its potential contributions to strengthening the performance of those systems.

Figure 1: MII domains and components

Leadership and governance
- Strategic planning
- M&E plan
- Malaria surveillance guideance
- Leadership and coordination

Workforce
- Training

ICT infrastructure
- Communication network: LAN and WAN
- Hardware
- Operations and maintenance

System standards and interoperability
- Technical standards
- Data and exchange standards

Data quality and management
- Data quality assurance, management, and quality control
- Information/data availability
- Data collection, analysis, and reporting

Data use
- Data use plan
- Synthesis and dissemination of information products
- Engagement of data users
- Capacity for data use
- Identification of data needs

Malaria Information Index: Application Process

The MII tool should be completed by national malaria SME representatives. Data are collected using an Excel-based workbook, which includes the scale framework and complementary data elements that measure malaria HIS and SME system capabilities at subnational levels.

Each of the 18 components are scaled 1 through 5 (or 1 through 3 for the data use elements and outcome indicators) and follow a general progression from low capacity to high capacity (Figure 2). For each scale component, the person completing the workbook should review the scale levels and pick the level that is the **best fit** for the country. A brief justification should be provided citing evidence to support the scale level selection. Any documentation not publicly available should be provided along with the completed workbook.

After completing the scale levels, data for the complementary data elements should be entered, which either require a numeric value or a Yes/No/Don't Know response. The workbook should be set up to collect data at the national and subnational level and units at the second subnational level in areas funded by PMI.

MII data can then be used to document the status of malaria SME components and to guide the project's technical priorities, or to support collaboration among project consortium partners. The workbook may be applied on an annual basis, as needed.

The MII was designed for use as an internal project tool for PMM to measure status and progress in each individual country and context and to inform the project's CLA efforts. The index was not designed as a participatory assessment tool or to be used to compare scores across countries. However, results from the index assessments may be shared with country stakeholders such as National Malaria Control Programs or the U.S. President's Malaria Initiative (PMI) country teams for informational purposes.

Figure 2: MII example scale level progression

1	2	3	4	5
Malaria HIS/SME activities happen by chance or represent isolated, ad hoc efforts	Malaria HIS/SME processes and structures are defined but not systematically documented	Malaria HIS/SME process and structures are documented and functional	NCMP and stakeholders use a functional platform for malaria HIS/SME systems and follow standard practices	NMCP and stakeholders routinely review malaria HIS/SME process and modify them to adapt to changing conditions

Malaria Information Index: User Guide

Introduction

This guide accompanies PMM's MII workbook. It provides step-by-step instructions for using the Excel-based workbook. The guide describes each tab in the workbook as follows: (1) Overview; (2) Scale Data-HIS Management; (3) Scale Data-Data Quality and Use; and (4) Complementary Data Elements.

Tab 1: Overview

The Overview tab in the workbook describes the tool's purpose, the process for completing the workbook, and details on how the results could be used. Review this tab carefully before proceeding. The MII was created by the PMM project to track project performance and support partners to operationalize learning. It was not designed to make comparisons across countries or regions.

The MII measures capacities in 6 domains, 18 respective components, and 4 outcomes. The components for the HIS management and data quality and management domains are measured on a **five-point scale** according to their status in the country at the time of application. The workbook describes the levels of progression for each component and generally follows this scale:

Scale level	Description
1	The country lacks capacity or does not follow processes systematically. Malaria health information system/surveillance, monitoring, and evaluation (HIS/SME) activities happen by chance or as isolated, ad hoc efforts.
2	The country may implement defined malaria HIS/SME processes and structures, but they are not systematically documented or done regularly. No formal or ongoing monitoring or measurement protocol exists.
3	The country has documented malaria HIS/SME processes and structures. The structures are functional. Metrics for performance monitoring, quality improvement, and evaluation are systematically used.
4	The NMCP and stakeholders use a functional platform for malaria HIS/SME systems and follow standard practices.
5	The NMCP and stakeholders routinely review malaria HIS/SME activities and modify them to adapt to changing conditions.

The sixth domain, data use, along with the four outcomes, are measured on a **three-point scale**. The workbook describes the levels of progression for each component and generally follows this scale:

Scale level	Description
1	The country lacks data use capacity or does not follow processes systematically. Malaria data use practices happen in isolated instances or through ad hoc efforts.
2	The NMCP and stakeholders routinely engage in data use practices at the national level. Nationally validated guidance on data use practices exists but may not be operationalized or disseminated at all levels of the health system.
3	The NMCP and stakeholders routinely engage in data use practices at national and subnational levels. Guidance is widely disseminated, and data use is integrated in day-to-day management of malaria information systems.

How to Complete the Workbook

The main inputs in each tab are:

1. The date of application (Figure 3)
2. Selection of scale level for each component (Figure 4)
3. Justification and evidence for the selected scale level (Figure 4)

Figure 3: Enter date of application

How to determine scale levels for a country context:

For each component (e.g., "1a: Strategic planning" in the HIS management tab), review the scale level descriptions 1 to 5 to determine the level that best fits the country and information system(s).

To meet a given scale level, all criteria listed for a scale level and the criteria for any scale levels below that level must be met, (e.g., a scale level 4 must also meet the criteria for scale levels 1, 2, and 3). In some instances, a half-scale score may be appropriate. (See the box on the next page about half scale scores for more information.) Once the scale level has been determined, select the appropriate number from the dropdown menu (Figure 4) in the **Scale Level** column.

For each component, a justification for your scale selection should be provided under "Justification and evidence" (Figure 4) to support your selection. The column titled "Data Sources" lists potential documents or resources that may provide evidence for your selection.

Repeat this step of entering your selected scale level and justification for each of the 10 components in this tab.

Figure 4: Enter scale level and justification

Tips for citing evidence:

1. If the documents are publicly available, name the source or provide a link. For example, if the country's monitoring and evaluation (M&E) plan is available in the Malaria Portal, cite the Malaria Portal in your justification.
2. If the documents are not available online, note the names of specific documents and include them with the workbook submission.
3. If the scale level has changed since previous rounds of data collection, provide a clear description of the changes that have taken place.

A half-scale score may be appropriate if a country meets some but not all criteria in a given scale level. This can occur when there is evidence that a country meets all criteria in one scale level **and** is actively working toward the next scale level but does not yet meet **all** criteria for the higher scale level. Half-scale scores should identify where strengthening efforts are happening within the specific component. See the example below.

Domain 5	Scale level 4 description	Scale level selection	Justification
5b. Information/ data availability	The data system in use ensures reliable and appropriate access to data at all levels for authorized users. Changes in reporting requirements are accommodated with minimal disruptions to data availability. The data system supports secondary use of data.	3.5	DHIS2 is being implemented to ensure data availability at all levels of the health system, including malaria data. Changes in reporting requirements are readily accommodated. Secondary data use is possible, but not yet universally available.

In this example, the country has completely met the criteria for a scale level 3 and is working to meet the criteria for scale level 4, but has not yet achieved consistency (e.g., only minimal disruptions, secondary data use possible but not yet universal) required for a scale level 4.

Tab 2: Scale Data-HIS Management

This tab collects data on the status of key components for managing a country's malaria-related HIS/SME systems according to an index scale. Note that your country and information system(s) will be prefilled at the top of this tab.

The first step in completing this tab is to fill in the box asking what partners work in the country context to support malaria HIS/SME system strengthening. Please provide partner names and the domain and/or component for which that partner provides support (Figure 5).

Figure 5. Enter information about malaria partners

The HIS Management tab includes four domains of HIS management in 10 respective components. Each component is described across the five scale levels along the horizontal axis. Table 1 briefly defines the purpose of each component in this tab.

Table 1. Summary of scale components related to HIS management

#	Component	Brief definition
Domain 1: Leadership and governance		
1a	Strategic planning	Processes for developing, implementing, and improving strategic plans related to malaria SME.
1b	M&E plan	Processes for developing, implementing, and improving M&E plans related to malaria SME.
1c	Malaria surveillance guidance	Processes for developing, implementing, and improving malaria surveillance guidance.
1d	Leadership and coordination	Coordinating mechanisms that manage malaria SME activities.
Domain 2: Workforce		
2a	Training	Processes and products for strengthening skills in the malaria SME workforce, including the coverage of training among malaria focal points.
Domain 3: ICT infrastructure		
3a	Communication network: local area network (LAN) and wide area network (WAN)	Network reliability, including coverage of network connection in subnational units (at the level of data entry in the national health information system).
3b	Hardware	Availability of hardware (servers, user computers, printers, and supportive accessories) and coverage of hardware among subnational units.
3c	Operations and maintenance	Procedures for operations and maintenance services for networks and hardware.
Domain 4: System standards and interoperability		
4a	Technical standards	Processes for developing and managing technical standards for HIS.
4b	Data and exchange standards	Implementation of data management and exchange standards.

Tab 3: Scale Data-Data Quality and Use

This tab collects data on the status of components that play a specific role in data quality and use in countries according to an index scale. This tab includes eight components of data quality and use across two domains, four outcome measures of data quality and use along the vertical axis, and up to five scale levels along the horizontal axis. Table 2 briefly defines the purpose of each component in this tab.

Table 2. Summary of scale components related to data quality and use

#	Component	Brief definition
Domain 5: Data quality and management		
5a	Data quality assurance, management, and quality control	Procedures for data quality assurance, including coverage and frequency of data quality assurance activities in facilities. Characterization of processes for developing, implementing, and improving data management procedures.
5b	Information/data availability	Availability of data across health system levels, including coverage of DHIS2 access by facilities.
5c	Data collection, analysis, and reporting	Automated data collection, analysis, and reporting features in the country's instance of DHIS2.
Domain 6: Data use		
6a	Data use plan	Availability and accessibility of a data use plan for data users and producers at national and subnational levels.

#	Component	Brief definition
6b	Synthesis and dissemination of information products	Development and dissemination of information products that use data from the system under review.
6c	Engagement of data users	Implementation of data review meetings at national and subnational levels.
6d	Capacity for data use	Processes and products for strengthening skills of data users and producers.
6e	Identification of data needs	The frequency at which decision makers at the national or subnational level identify and request the data needed to inform evidence-based decisions.
Outcomes		
7a	Data quality: Timeliness	In the system under review, the proportion of the number of reports submitted to the next health system level by the due date out of the total number of reports that are expected to be received by that due date.
7b	Data quality: Completeness (number of reports received/number of reports expected)	In the system under review, the proportion of the number of reports received in the system out of the total number of reports that are expected to be received.
7c	Data quality: Completeness (of data elements)	In the system under review, the proportion of the number of reports that are not missing any data elements out of the total number of data elements that are expected to be received.
7d	Data use results	Implementation and outcomes of data use by decision makers at the national and subnational levels.

Under this tab, **Domain 5: Data quality and management** is scaled from 1 to 5, and **Domain 6: Data Use and Outcomes** is scaled from 1 to 3. For each component under this tab, you will follow a similar process as in the previous tab whereby you select the appropriate scale level and enter a justification that cites the evidence.

Note that data quality outcomes (7a-7c) are scaled from 1 to 3, as follows:

Scale level	Description
1	Less than 60 percent
2	Between 61 and 79 percent
3	Greater than 80 percent

Select the scale level that corresponds with the measure of data quality for your context and <u>make note of the actual measure and source in your justification</u>. You should also <u>note the date range</u> of the data quality measure provided in the justification and evidence column (Figure 6).

Figure 6. Enter scale level, measure, and date

Scale level	Justification and evidence	Date range
3	99.20%	January-December 2021

Tab 4: Complementary Data Elements

This tab collects additional data on the country's malaria-related HIS and SME capacities. Whereas the Scale Data tabs collect data at the national level, this tab collects data at the national and subnational levels. Subnational levels are organized into all first-level administrative units and second-level administrative units within first-level administrative units. In instances in which all subnational data are not available, first- and second-level administrative units can be limited to PMI-priority areas or areas directly supported by PMM. First-level administrative units can include provinces or regions, and second-level administrative units can include districts, counties, or health zones. (This information is prefilled for your country context in the workbook.) Table 3 briefly defines the purpose of and accepted values for each data element.

Table 3. Summary of data elements

Data element	Brief definition	Accepted values
Number of malaria focal point persons	Count of the number of malaria focal point persons at the national level and administrative levels 1 and 2.	0 or more
Number of data managers responsible for HIS	Count of the number of data managers responsible for HIS at the national level and administrative levels 1 and 2	0 or more
Number of malaria focal point persons that have received training in HIS/SME in the past 12 months	Count of the number of malaria focal point persons at the national level and administrative levels 1 and 2 who have received training from any training organization related to HIS or SME in the past year.	0 or more
Number of data managers responsible for HIS that have received training in HIS/SME in the past 12 months	Count of the number of data managers responsible for HIS at the national level and administrative levels 1 and 2 who have received training from any training organization related to HIS or SME in the past year.	0 or more
Indicate whether the program office has a reliable network connection	Yes/no status regarding whether the program office at the national level and administrative levels 1 and 2 have reliable network connections.	Yes; No; Don't know
Indicate whether the malaria program office has the required hardware	Yes/no status regarding whether the program office at the national level and administrative levels 1 and 2 have the required hardware.	Yes; No; Don't know
Indicate whether the malaria program office produces information products (e.g., bulletins, reports) using national guidance	Yes/no status regarding whether the program office at the national level and administrative levels 1 and 2 use national guidance in the production of information products.	Yes; No; Don't know
Indicate whether the malaria program office has participated in data review meetings in the past 12 months	Yes/no status regarding whether the program office at the national level and administrative levels 1 and 2 have participated in at least one data review meeting in the past year.	Yes; No; Don't know
Number of public health facilities	Count of the number of public health facilities in each first-level administrative unit (and disaggregated by second-level administrative unit, where appropriate).	0 or more
Number of public health facilities that directly enter data in the system(s) under review	Count of the number of public health facilities in each first-level administrative unit (and disaggregated by second-level administrative unit, where appropriate) that are able to directly report in the information system(s) under review in this workbook.	0 or more

Data element	Brief definition	Accepted values
Percentage of public health facilities that directly enter data in the system(s) under review	Number of public health facilities that directly report in the system(s) under review/number of public health facilities.	0% or more; automatically calculated
Number of public health facilities that have had two or more routine data quality assessments (RDQAs) or malaria RDQAs (MRDQAs) in the past 12 months	Count of the number of public health facilities in each first-level administrative unit (and disaggregated by second-level administrative unit, where appropriate) that have undergone two or more data quality audits in the past year.	0 or more
Percentage of public health facilities that have had two or more RDQAs/MRDQAs in the past 12 months	Number of public health facilities that have had two or more RDQAs/MRDQAs in the past 12 months/number of public health facilities.	0% or more; automatically calculated
Number of public health facilities that have received two or more supportive supervision visits in the past 12 months	Count of the number of public health facilities in each first-level administrative unit (and disaggregated by second-level administrative unit, where appropriate) that have received two or more supportive supervision visits in the past year.	0 or more
Percentage of public health facilities that have received two or more supportive supervision visits in the past 12 months	Number of public health facilities that have received two or more supportive supervision visits in the past 12 months/number of public health facilities.	0% or more; automatically calculated
Number of public health facilities that have attended eight or more data review meetings in the past 12 months	Count of the number of public health facilities in each first-level administrative unit (and disaggregated by second-level administrative unit, where appropriate) that have attended eight or more data review meetings in the past year.	0 or more
Percentage of public health facilities that have attended eight or more data review meetings in the past 12 months	Number of public health facilities that have attended eight or more data review meetings in the past 12 months/number of public health facilities.	0% or more; automatically calculated

Figure 7. Enter numeric values for data elements requiring a count

The first column in the data table includes the national level and prefilled values for the first- and second-level administrative units for your country. Similar to the Scale Data tabs, the user will first enter the date this section was completed. Next, enter the requested data for each level (national level, administrative level 1, and administrative level 2 in first-level administrative units supported by PMM). Note that for data elements that require a numeric value, the cells are prefilled with a zero; if the actual numeric value is other than zero, then replace that cell with the actual numeric value (Figure 7). Any data element requiring a percent will be automatically calculated based on the numeric data you provide for other data elements. Also note that for data elements that require a "Yes/No/Don't know" response, you can select that response from the dropdown menu (Figure 8).

Figure 8. Select "Yes, No, or Don't know" for data elements requiring a yes/no status
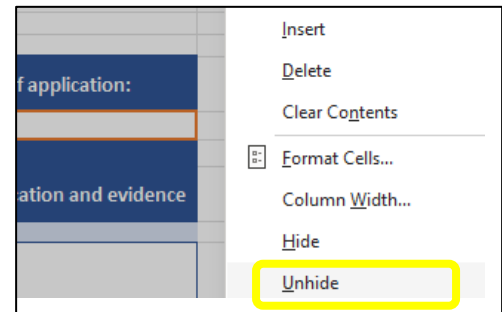
	Districts	Indicate whether the program office has a reliable network connection	Indicate whether the malaria program office has the required hardware	whether the malaria program office produces information products (e.g., bulletins, reports) using national guidance	Number of public health facilities	
National		Yes	Yes			
Vakinankaratra		Yes			159	
Vakinankaratra	Ambatolampy	Yes	Yes		27	
Vakinankaratra	Antanifotsy	Yes	No		22	
Vakinankaratra	Antsirabe I	Yes	Don't know		5	
Vakinankaratra	Antsirabe II	Yes		response from the list	18	
Vakinankaratra	Betafo	Yes			26	
Vakinankaratra	Faratsiho	Yes			21	
Vakinankaratra	Mandoto	Yes			16	

Using the Workbook for Subsequent Rounds of Data Collection

The MII can be repeated as needed to measure the status and progress of components over time. Additional columns are set up in each tab for up to five rounds of data collection. To unhide additional columns:

Figure 9: Unhide columns

1) Select the columns to the right of the column you want to unhide. For example, in the HIS management tab, select and highlight columns K – T.
2) Right click the highlighted columns then select "Unhide" from the drop down menu. You can also go to the Home tab > Cells group and click Format > Hide & Unhide > Unhide columns.
3) You should see additional columns that are set up for data collection.