Malaria Routine Data Quality Assessment Tool

User Manual

March 2020

USAID FROM THE AMERICAN PEOPLE

CDC Centers for Disease Control and Prevention

U.S. President's Malaria Initiative

MEASURE Evaluation

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The Malaria Routine Data Quality Assessment (MRDQA) Tool was developed, adapted, and improved through the contributions of technical experts from various organizations. Those most directly involved in the development of the original tool were Yazoumé Yé and Michael Paula, of MEASURE Evaluation, ICF, and David Boone, of MEASURE Evaluation, JSI. Michael Paula prepared this manual to accompany the MRDQA tool with input from Debra Prosnitz and Diadier Diallo, of MEASURE Evaluation, ICF.

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Cover

Photo: Shutterstock

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CONTENTS

FIGURES

ABBREVIATIONS

ACT	artemisinin-based combination therapy
DHIS2	District Health Information Software, version 2
DHMT	District Health Management Team
HMIS	health management information system
LMIS	logistics management information system
MRDQA	Malaria Routine Data Quality Assessment
RDT	rapid diagnostic test
VF	verification factor
WHO	World Health Organization

INTRODUCTION

In 2020, the United States Agency for International Development- and U.S. President's Malaria Initiative-funded MEASURE Evaluation project developed the Malaria Routine Data Quality Assessment (MRDQA) Tool: A Checklist to Assess the Quality of Malaria Program Data, for use by malaria programs (MEASURE Evaluation, 2020; https://www.measureevaluation.org/resources/publications/tl-20-85/).

The MRDQA tool is a checklist that supports a targeted, rapid data-quality assessment focused on malaria data for use in routine data quality monitoring as part of regular supervision efforts. The tool aims to standardize and facilitate the routine assessment of malaria data quality by a district team during supportive supervision visits at health facilities. The tool can also be used by central and regional staff jointly with district teams to assist in data quality efforts.

A comprehensive approach to data quality assurance should include three complementary approaches using standard methods and tools:

- Routine and regular (i.e., monthly) reviews of data quality built into a system of checks of the health management information system (HMIS) or other program reporting systems as part of a feedback cycle that identifies errors in near real-time so that they can be corrected as they occur
- An annual independent assessment of a core set of tracer indicators (see Appendix A) to identify gaps and errors in reporting and the plausibility of trends in health facility data reported during the previous year
- Periodic in-depth program-specific reviews of data quality that focus on a single disease or program area and are timed to meet the planning needs of the specific programs (e.g., before program reviews)

National malaria control programs can use the MRDQA tool to strengthen their malaria surveillance systems, in line with the Global Technical Strategy for Malaria 2016–2030 (World Health Organization [WHO], 2015) and the WHO surveillance manual (WHO, 2018). The MRDQA tool builds on MEASURE Evaluation's Routine Data Quality Assessment Tool (MEASURE Evaluation, 2008) and other tools, such as ICF's Integrated Community Case Management Data Quality Assessment Toolkit (ICF, 2017) and WHO's Data Quality Review Supervisory Checklist (WHO, 2017).

This manual describes the purpose and structure of the MRDQA tool and offers considerations for personnel and logistics, sampling considerations, details on preparing for fieldwork, and step-by-step instructions for using the tool. The MRDQA tool provides even more detail on use of the tool in the Instructions tab.

OVERVIEW OF THE MRQDA TOOL

Purpose

An assessment using the MRDQA tool aims to facilitate the routine review of malaria data quality at select health facilities by district teams during supportive supervision visits to health facilities. Supportive supervision is done on a quarterly basis.

This assessment is best conducted quarterly, along with quarterly supportive supervision. This frequency allows for the review of data from the previous three months.

Tool Structure

The Excel-based MRDQA tool assesses malaria data quality in the routine health information system. The tool is structured in five sections:

I. Evaluation of timeliness and completeness
II. Reporting accuracy assessment
III. Cross-checks
IV. Consistency of reported data over time
V. System assessment

Section I. Evaluation of Timeliness and Completeness

The MRDQA tool evaluates both data completeness and timeliness. In this tool, data completeness compares whether expected data values from data sources are being reported appropriately. Timeliness measures whether entities submit reports on or before a predefined deadline.

This section has four components:

A. Completeness of the monthly report
B. Timeliness of submission of the monthly report
C. Data element completeness
D. Source document completeness

Section II. Reporting Accuracy Assessment

This section provides insight about whether there are data quality problems for up to five specific malaria indicators. This is done through the comparison of indicator values for a three-month period across the District Health Information Software, version 2 (DHIS2) and source malaria documents, such as malaria case registers.

Section III. Cross-Checks

Part A of Section III compares data elements between the malaria case register (or HMIS register) and the pharmacy dispensing register. Part B compares data elements between the malaria case register (or HMIS

register) and the laboratory register, if applicable, at the health facility. Part C compares data between the HMIS and the logistics management information system (LMIS).

Section IV. Consistency of Reported Data Over Time

This section allows the tracking of one indicator over time. By seeing how an indicator's value changes over time, insights can be gleaned. Generally speaking, missing values or large variations in values may indicate data quality problems.

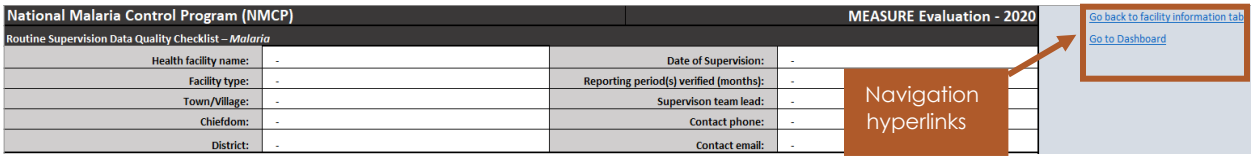
Section V. System Assessment

This section provides an assessment of best practices for producing good quality data and serves as a guide to data managers who would like to assess data quality on a periodic basis. The checklist prompts the MRDQA team to note "yes" or "no" on whether the specific practice is evidenced at a facility.

Tool Navigation

The tool has built-in hyperlinks to facilitate navigation. The top right-hand corner of most pages has hyperlinks to other frequently used tabs in the tool. For example, for each facility-specific page, there are links for the Facility Information tab and the Dashboard tab (Figure 1). On the Facility Information tab, each facility name in the list of facilities is hyperlinked to the tab with information specific to that facility.

Figure 1. Navigation hyperlinks



IMPLEMENTING THE TOOL

Personnel and Logistics Considerations

Team members conducting the MRDQA should be district-level staff who are routinely responsible for supportive supervision visits to health facilities. Ideally, these team members should be involved in monitoring and evaluation responsibilities. Team members should also be familiar with routine health information system tools and resources. The size of the team will vary, depending on the number of sites that will be visited, the availability of personnel and time, and logistics and financial constraints.

Factors that may increase the amount of time needed to conduct the MRDQA include the number of sites visited, the number of malaria-specific indicators assessed, the availability of data sources at the health facilities, and the familiarity of the MRDQA team with the data sources and other details about information collected as part of the MRDQA.

Sampling Considerations

The MRDQA tool allows programs to assess the quality of their data and strengthen their data management and reporting systems with flexibility. The tool is intended to be used with or without rigorous sampling criteria.

Depending on the objectives of the assessment, purposive sampling, also known as subjective sampling or random sampling, can be used to select sites. Purposive sampling is appropriate for the MRDQA if, based on existing information, the district or national malaria program knows which health facilities need to be assessed. The MRDQA tool can then be used to investigate the data quality issues at these targeted health facilities.

The tool allows up to 24 health facilities to be included in any one assessment. The health facilities should be selected based on the priorities of the country program. After the facilities have been identified, the team visits them to conduct the MRDQA.

Preparing the MRDQA Tool for Fieldwork

The MRDQA team should first complete the Facility Information tab and the Indicators tab. After these tabs are completed, the information is auto-populated in different parts of the tool.

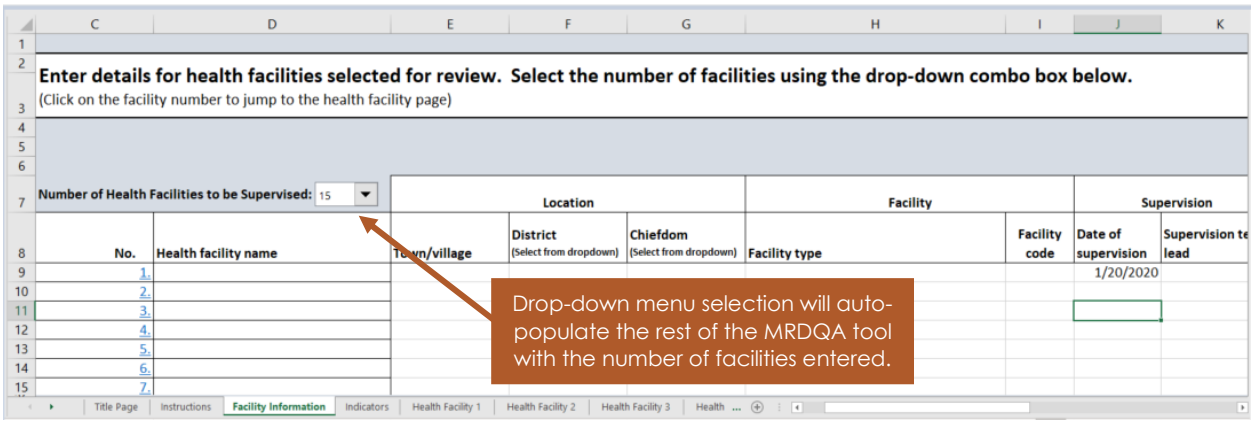
Facility Information Tab

The Facility Information tab includes information about the facilities to be visited during the round of supervision. The information includes the facility name, facility type, town/village, district, region, date of supervision, and supervisory team leader name and contact information.

After the data are entered in the Facility Information tab, the details by site are auto-populated in the facility-specific tabs and dashboard. Indicate the number of facilities included in this round of supervision using the drop-down menu in cell D7 (Figure 2). After the selection is made, the appropriate number of facility tabs

will appear, as will the appropriate number of rows in the Facility Information tab. This selection also configures the graphics in the dashboard for the appropriate number of facilities.

Figure 2. Facility Information tab



Indicators Tab

In the Indicators tab, the MRDQA team selects the indicators that will be traced. Use the combo box to select the number of indicators (1–5), and the rest of the workbook will be automatically updated to reflect the selection. To begin, select the indicator type and then the indicator name from the drop-down lists. If you plan to trace indicators not included in the drop-down list, select "other_specify" and enter the type and name of the indicator in the spaces provided.

In addition to selecting indicators, the Indicators tab allows the input of information about cross-checks, consistency over time, and documentation of data elements and source documents. Use the drop-down menus, where applicable.

After the information in the Indicators tab has been entered, it will auto-populate the facility-specific tabs and the dashboard. Figures 3a and 3b provide examples of the layout of the Indicators tab.

The tool enables the tracing of up to five indicators. A list of the malaria-specific indicators captured by the tool is provided in Appendix A.

Figure 3a. Indicators tab—1

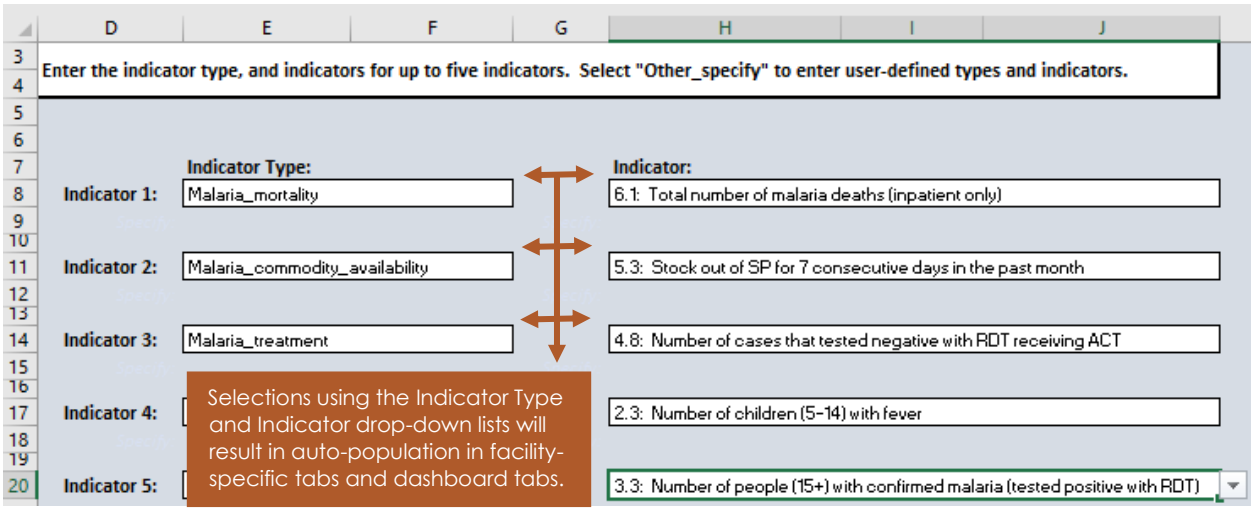
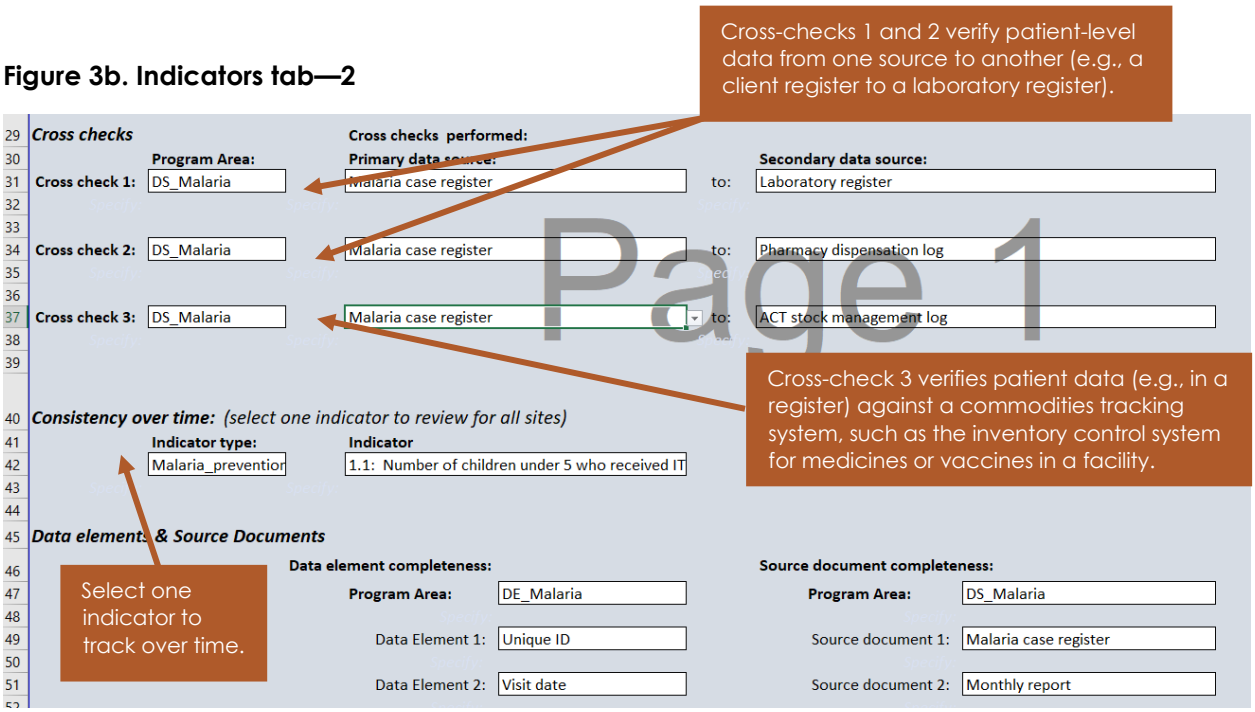


Figure 3b. Indicators tab—2



CONDUCTING THE MRDQA

This section describes how the MRDQA team conducts the assessment and implements the tool.

Section I. Evaluation of Timeliness and Completeness

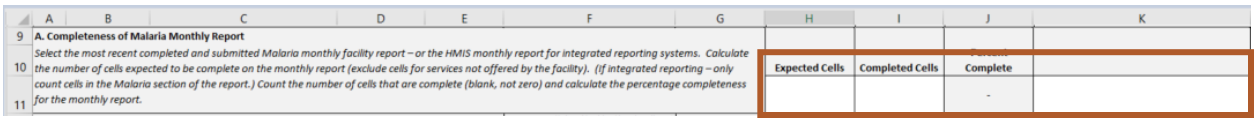
To complete Section I, the MRDQA team needs access to the following:

- Health facility HMIS monthly summary forms or malaria-specific monthly summary forms for the previous three months.
- Malaria case registers or appropriate source documents for the previous three months.
- DHIS2 or another existing database that captures the HMIS monthly summary form data for the same time period.

For Part A, select the most recently completed and submitted malaria monthly facility report or the HMIS monthly report (in the case of integrated reporting systems). Calculate the number of cells expected to be completed on the monthly report (exclude cells for services not offered by the facility) and record this number in cell H11 in the tool. For integrated reporting systems, count only cells in the malaria section of the report.

Count the number of cells that are complete and record this in cell I11. The tool will calculate the percentage complete in cell J11. Include comments that may explain discrepancies between the expected cells and actually complete cells in cell K11. Figure 4 shows Part A of Section I.

Figure 4. Completeness of malaria monthly report

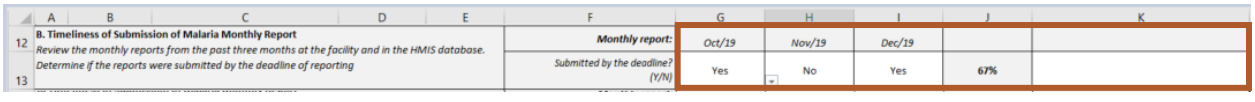


	A	B	C	D	E	F	G	H	I	J	K
9	**A. Completeness of Malaria Monthly Report**										
10	*Select the most recent completed and submitted Malaria monthly facility report – or the HMIS monthly report for integrated reporting systems. Calculate the number of cells expected to be complete on the monthly report (exclude cells for services not offered by the facility). (If integrated reporting – only count cells in the Malaria section of the report.) Count the number of cells that are complete (blank, not zero) and calculate the percentage completeness for the monthly report.*							**Expected Cells**	**Completed Cells**	**Complete**	
11										-	

For Part B, review the monthly reports for the past three months at the facility and in the HMIS database. Determine whether the reports were submitted by the deadline for reporting. For each summary form, note either "Yes" or "No" to indicate whether the forms were submitted on time in cells G13, H13, and I13. Include comments that may explain discrepancies or context in cell K13.

Note: The dates appearing in the Monthly Report fields (cells G12, H12, and I12) are auto-populated and are based on information entered in the Date of Supervision field in the Facility Information tab. In the example in Figure 5, the date of supervision is 1/20/2020. As such, the auto-populated fields show the previous three months of October, November, and December 2019. Figure 5 shows Part B of Section I.

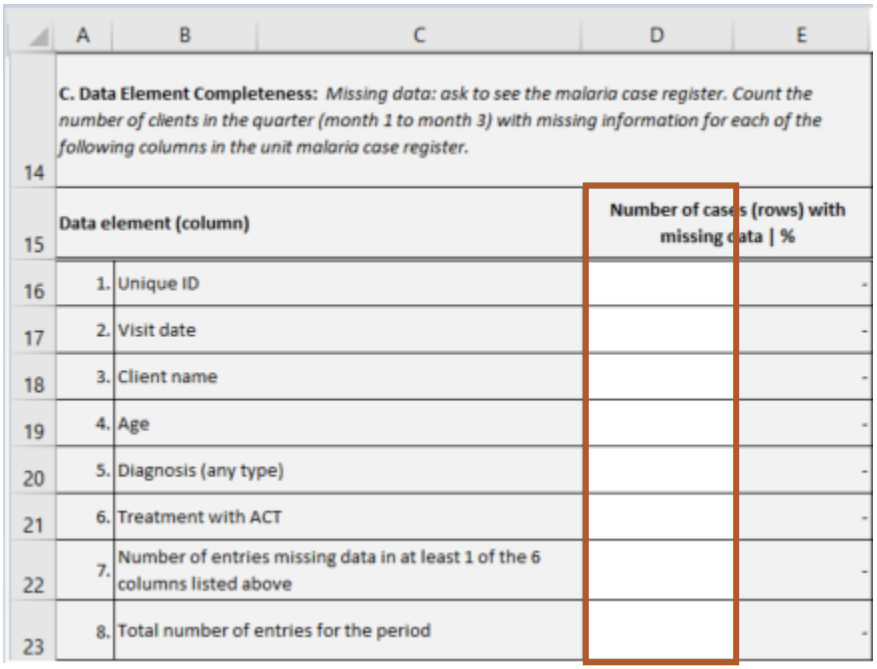
Figure 5. Timeline of submission of malaria monthly report



	A	B	C	D	E	F	G	H	I	J	K
12	**B. Timeliness of Submission of Malaria Monthly Report**					***Monthly report:***	*Oct/19*	*Nov/19*	*Dec/19*		
13	*Review the monthly reports from the past three months at the facility and in the HMIS database. Determine if the reports were submitted by the deadline of reporting*					*Submitted by the deadline? (Y/N)*	Yes	No	Yes	**67%**	

For Part C, refer to the malaria case registers used during the previous three months. Count the number of clients in the quarter that have missing data elements outlined in the data element cells D16–23 (Figure 6).

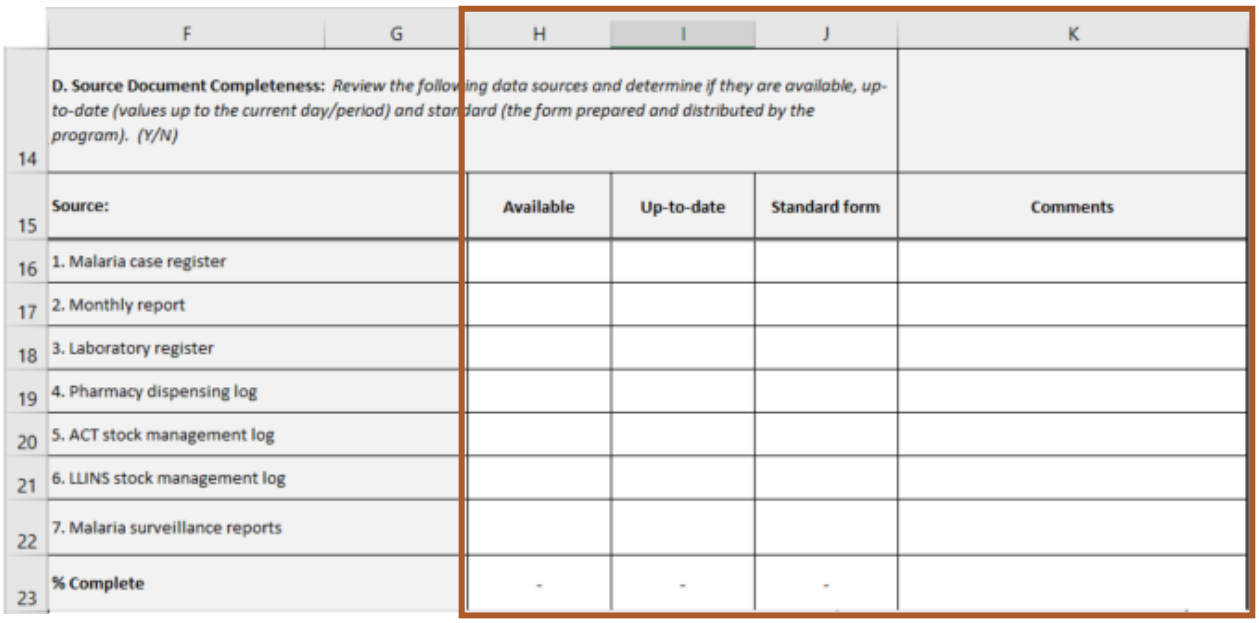
Figure 6. Data element completeness



	A	B	C	D	E
14	**C. Data Element Completeness:** *Missing data: ask to see the malaria case register. Count the number of clients in the quarter (month 1 to month 3) with missing information for each of the following columns in the unit malaria case register.*				
15	**Data element (column)**			**Number of cases (rows) with missing data | %**	
16	1.	Unique ID			-
17	2.	Visit date			-
18	3.	Client name			-
19	4.	Age			-
20	5.	Diagnosis (any type)			-
21	6.	Treatment with ACT			-
22	7.	Number of entries missing data in at least 1 of the 6 columns listed above			-
23	8.	Total number of entries for the period			-

For Part D, review several malaria data sources for the past month. Note whether each data source is available, up-to-date, and standardized in cells H16–H22, I16–I22, and J16–J22. These data sources include the malaria case register, monthly summary report, laboratory register, pharmacy dispensing log, artemisinin-based combination therapy (ACT) stock management log, long-lasting insecticidal net stock management log, and integrated disease surveillance reports. Include comments in cells K16–K23. Figure 7 shows Part D of Section I.

Figure 7. Source document completeness



	F	G	H	I	J	K
14	**D. Source Document Completeness:** *Review the following data sources and determine if they are available, up-to-date (values up to the current day/period) and standard (the form prepared and distributed by the program). (Y/N)*					
15	**Source:**		**Available**	**Up-to-date**	**Standard form**	**Comments**
16	1. Malaria case register					
17	2. Monthly report					
18	3. Laboratory register					
19	4. Pharmacy dispensing log					
20	5. ACT stock management log					
21	6. LLINS stock management log					
22	7. Malaria surveillance reports					
23	**% Complete**		-	-	-	

Section II. Reporting Accuracy Assessment

To complete Section II, the MRDQA team needs access to the following:

- Malaria case registers or appropriate indicator source documents used during the past three months.
- Health facility HMIS monthly reports or malaria-specific monthly reports for the previous three months.
- DHIS2 or other database that captures the HMIS monthly summary form data for the same time period.

After the indicators have been identified and auto-populated in the tool, the MRDQA team recounts the values of the indicators from the malaria case register and compares these values with the ones reported by the facility for the selected months.

For each indicator, recount the value from the original malaria case register for each month and note it in the relevant cell (cells G30, H30, and I 30 in Figure 8). Next, note the value reported in the health facility HMIS monthly summary form or malaria-specific monthly summary forms (cells G31, H31, and I31). Last, note the values reported in the DHIS2 or HMIS database (cells G32, H32, and I32).

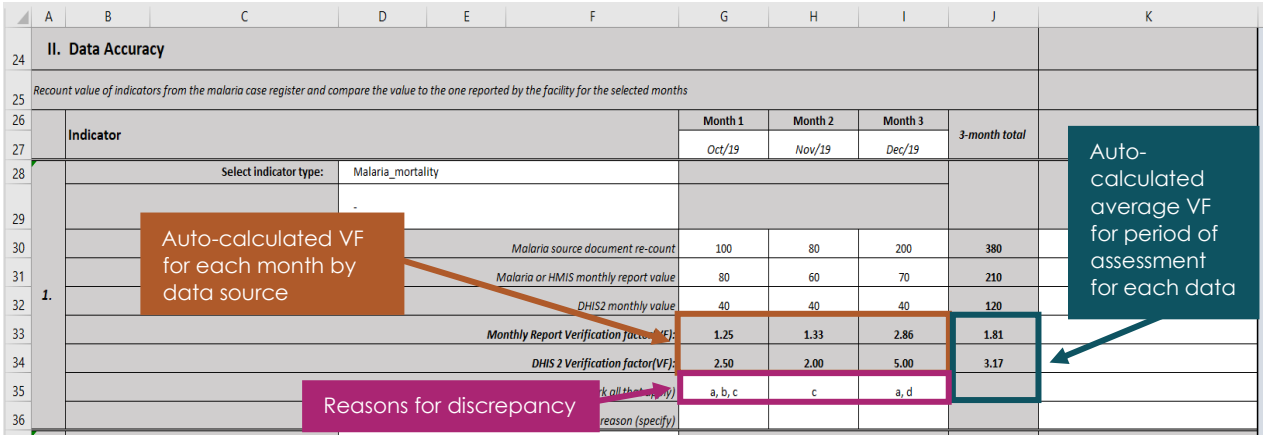
After all values have been noted, the tool auto-calculates the verification factors (VFs). VFs are standard reporting accuracy checks whereby a validated value for selected indicators and the reporting period are compared with the value reported for the same identified reporting period.

The VF is calculated when the recounted (or validated) value is divided by the reported value (from the monthly report or DHIS2):

$$VF = \frac{\text{Validated (recounted) value}}{\text{Reported value}} \times 100$$

VFs are calculated for each month in the assessment, along with a VF for the entire three-month reporting period for each data source. In Figure 8, VFs for each month of the assessment using the malaria or HMIS monthly report values are noted in cells G33, H33, and I33. VFs for each month of the assessment using the DHIS2 value are noted in cells G34, H34, and I34. Figure 8 provides an example of Section II.

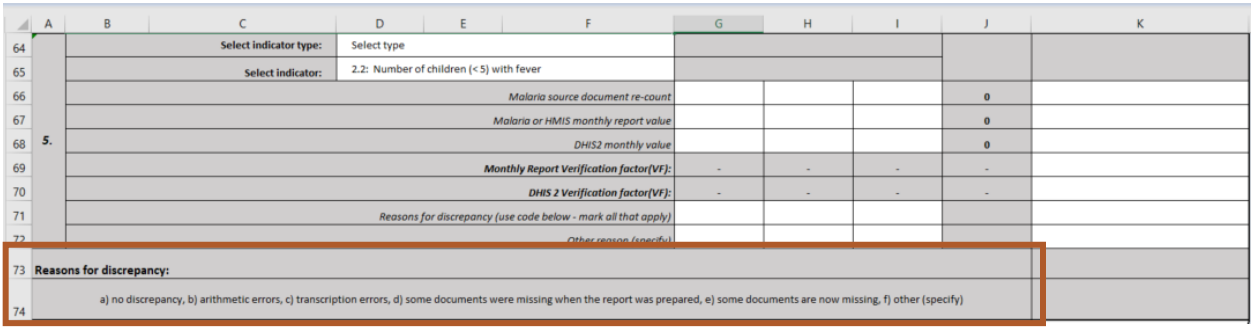
Figure 8. Data accuracy



VF values of less than 0.9 (90%) or greater than 1.1 (110%) indicate data quality problems (underreporting and overreporting) and should be investigated. Values should be tracked over time to determine trends in reporting accuracy for different indicators.

Knowing the cause of discrepancies is important for determining what action to take to correct the problem; it is therefore important to accurately identify and record the reasons for the discrepancies. If there are discrepancies between the validated and reported values, determine the cause and record it using the codes listed in the reasons for discrepancy in row A74. Figure 9 shows the reasons for discrepancy.

Figure 9. Reasons for discrepancy



Section III. Cross-Checks

Cross-checks compare how data are recorded from different sources at health facilities. They check to see whether the sources are communicating accurately with one another. Two or three cross-checks per facility are recommended. Each cross-check does not need to be completed during each visit, but some cross-checks should be attempted. Cross-checks can be substituted or added, as needed, depending on program- or data-specific concerns.

The cross-checks in Section III include comparisons between the following:

- Malaria case register or HMIS register versus the pharmacy dispensing register
- Malaria case register or HMIS register versus the laboratory register (if applicable)
- Malaria cases treated versus the ACT stock management system (e.g., LMIS database, pharmacy stock, dispensing register)

To complete Section III, the MRDQA team needs access to the following:

- Malaria case registers used during the past three months
- Pharmacy dispensing register used during the past three months
- Laboratory register used during the past three months
- Data sources for malaria cases treated, such as health cards or other registers
- ACT stock management system (LMIS database, pharmacy stocks, or dispensing register)

For Part A, two data sources are compared: the malaria case register and the pharmacy dispensing register.

Randomly select 10 patients who have been treated at the facility from the malaria case register. Note the number of patients in cell J82. Next, note how many of these patients had a corresponding entry with matching information in the laboratory register in cell J83. For example, did the patient information (e.g., name, age, date of visit) in the malaria case register match the patient information in the pharmacy register, which would record whether ACTs were dispensed to a patient? After both values are noted in the tool, a pharmacy register relatability rate is calculated in cell J84. Values of 90 percent or more can be considered acceptable. Include comments that may explain discrepancies or context using codes in column K. Figure 10 shows Part A of Section III.

Figure 10. Part A of Section III

	A	B	C	D	E	F	G	H	I	J	K
79	**III. Cross Checks**										**Comments**
80	**A — Malaria case register : Laboratory register (quality target = 90%)**										
81	*Randomly select 10 patients who have been treated in the period at the facility from the Malaria case register.*										
82	*1. Number of cases sampled from the Malaria case register.*									20	
83	*2. How many of the patients selected had a corresponding entry with matching information for the patients in the Laboratory register?*									19	
84									*Laboratory register reliability rate:*	**0.95**	

For Part B, two data sources are compared: the malaria case register and the laboratory register.

Randomly select 10 malaria cases from the malaria case register that have initiated treatment at the facility. Note this number in cell J87. Next, note how many of the selected cases had a corresponding entry with matching information between the malaria case register and the pharmacy register in cell J88. After both values are noted in the tool, a pharmacy register relatability rate is calculated in cell J89. Values of 90 percent or more can be considered acceptable. Include comments that may explain discrepancies or context in column K. Figure 11 shows Part B of Section III.

Figure 11. Part B of Section III

	A	B	C	D	E	F	G	H	I	J	K
85	**B — Malaria case register : Pharmacy dispensation log (quality target = 90%)**										
86	*Randomly select 10 cases who have been treated in the period at the facility from the Malaria case register.*										
87	*1. Number of cases sampled from the Malaria case register.*									20	
88	*2. How many of the patients selected had a corresponding entry with matching information for the patients in the Pharmacy dispensation log?*									18	
89									*Pharmacy dispensation log reliability rate:*	**0.90**	

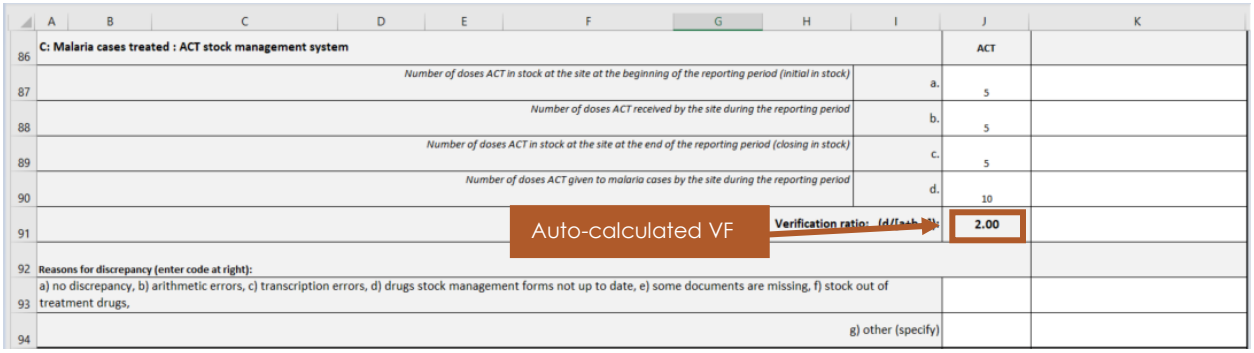
For Part C, a comparison of service delivery is done between the service delivery information system (HMIS) and the commodities tracking information system (LMIS) for indicators that use commodities, such as drugs or test kits. For example, do the drugs used match the number of drugs received? Note the values in cells J87–J90.

When completing Part C, consult the ACT stock management system. Four values are needed:

a. Number of doses in stock at the site at the beginning of the reporting period (initial in stock)
b. Number of doses received by the site during the reporting period
c. Number of doses in stock at the site at the end of the reporting period (closing in stock)
d. Number of doses given to pregnant women by the site during the reporting period

After all values have been recorded (cells J87–J90), a "verification ratio" is auto-calculated by dividing the value of service delivery reported through the HMIS or program reporting system by the value derived from the stock management system. The auto-calculated value is recorded in cell J91. A VF value indicates possible overcounting of service delivery (VF>1) or undercounting of service delivery (VF<1). Include comments that may explain discrepancies or context using codes from row A93 and note them in cells K87–K90. Figure 12 shows Part C for Section III.

Figure 12. Part C of Section III



Section IV. Consistency of Reported Data Over Time

Data for current indicator values are compared with historical precedents. Only one indicator can be tracked per assessment. Figures 13 and 14 provide examples of data entry for this section.

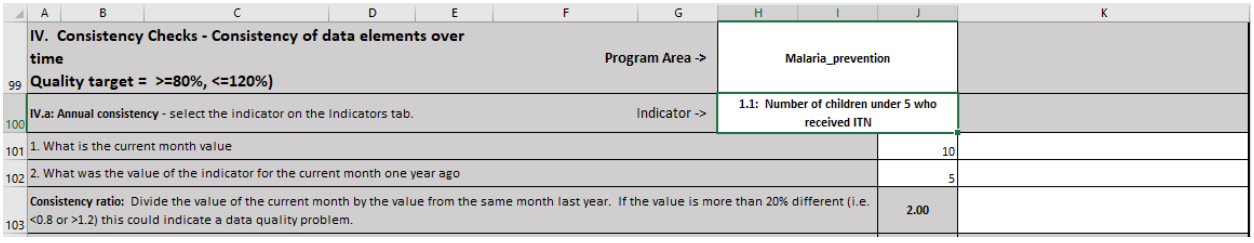
Part A compares the indicator value from the current month with the same month one year ago.

Enter the current month value of the indicator in cell J101 (Figure 13). Next, enter the value of the indicator from one year ago in cell J102. After both values are entered, the tool calculates the consistency ratio in cell J103 using this formula:

$$\text{Consistency ratio} = \frac{\text{Current month value}}{\text{Value from same month last year}} \text{ X } 100$$

Barring large demographic changes in the facility's catchment area, these values should be similar. A difference of greater than 20 percent (that is, a ratio of greater than 1.2 or less than 0.8) may indicate a data quality problem and should be investigated. Changes in service delivery patterns, such as intensification campaigns or stockouts of commodities, can also produce similar results; therefore attention should be paid to the causes of discrepant values before concluding that a data quality problem exists.

Figure 13. Part A of Section IV



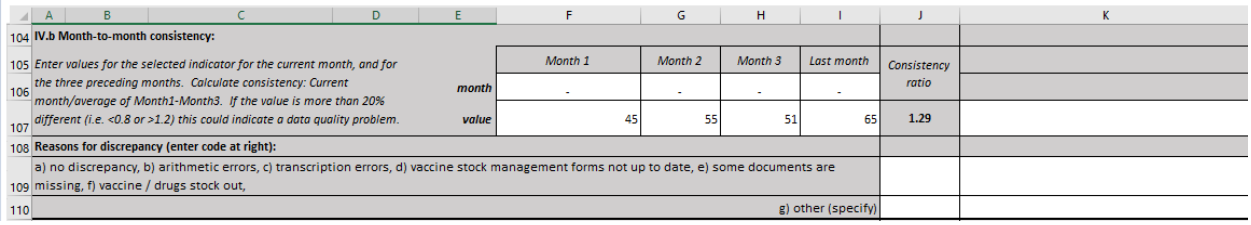
Part B compares the current month's value with the average of the three preceding months.

Enter the current month's value of the indicator in cell I107 (Figure 14). Next, enter the values of the three preceding months in cells F107, G107, and H107. After these values are entered, the tool calculates the consistency ratio in cell J107 using this formula:

$$\text{Consistency ratio} = \frac{\text{Current month value}}{\text{Average of month 1, month 2, and month 3}} \times 100$$

The value of the indicator should remain fairly consistent from month to month. Again, a difference of 20 percent between the current month value and the average of the three preceding months is indicative of a potential problem.

Figure 14. Part B of Section IV



	A	B	C	D	E	F	G	H	I	J	K
104	**IV.b Month-to-month consistency:**										
105	*Enter values for the selected indicator for the current month, and for*					*Month 1*	*Month 2*	*Month 3*	*Last month*	*Consistency ratio*	
106	*the three preceding months. Calculate consistency: Current*				***month***	-	-	-	-		
107	*month/average of Month1-Month3. If the value is more than 20% different (i.e. <0.8 or >1.2) this could indicate a data quality problem.*				***value***	45	55	51	65	**1.29**	
108	**Reasons for discrepancy (enter code at right):**										
109	a) no discrepancy, b) arithmetic errors, c) transcription errors, d) vaccine stock management forms not up to date, e) some documents are missing, f) vaccine / drugs stock out,										
110									g) other (specify)		

Section V. System Assessment

Section V is a checklist of best practices for producing good quality data and serves as a guide to data managers on what to check periodically to ensure data quality. The checklist prompts the MRDQA team to note "Yes" or "No" on whether the criteria is evidenced at the facility.

To be considered "evidenced," the MRDQA team should witness the criteria. For example, if the criteria focus on the existence of a document, the document should be physically seen at the facility to be marked with a "Yes." Verbal confirmation is not considered "evidenced."

The responses are recorded and archived for comparison over time. Answers are noted in cells J96–J107. Add comments in cells K96–K107, as necessary. Figure 15 shows the system assessment.

Figure 15. System assessment

V. **System Assessment -** *Respond Yes or No for the following questions.*		Y/N	
IV.1	Is there a designated person to enter data and compile reports?	Yes	
IV.2	Is there a designated person to review the quality of compiled data prior to submission to the next level?	No	
IV.3	Does the health facility have written guidelines on data collection and reporting for malaria?	No	
IV.4	Does the health facility have a reserve stock of blank registers or reporting forms?	No	
IV.5	Has this health facility experienced any stock out of registers or reporting forms (since last visit)?	Yes	
IV.6	Is a standardized register being used to record information on malaria cases (not improvised forms)?	No	
IV.7	Can a patient's malaria diagnosis and treatment history be easily found in the facility records?	Yes	
IV.8	Are data archives properly maintained with historical patient level (registers) and aggregate (monthly report) results?	No	
IV.9	Does the facility maintain accurate demographic information for the catchment area (that is, a record current population and the number of births and deaths)?	No	
IV.10	Does the facility have established targets to monitor progress towards goals and objectives for malaria prevention and treatment?	No	
IV.11	Does the facility have an up-to-date display (for example, a chart on the wall) of the number of malaria cases diagnosed and treated by reporting period for the year?	Yes	
IV.12	Is there a chart of disease incidence by month displayed at the facility?	No	

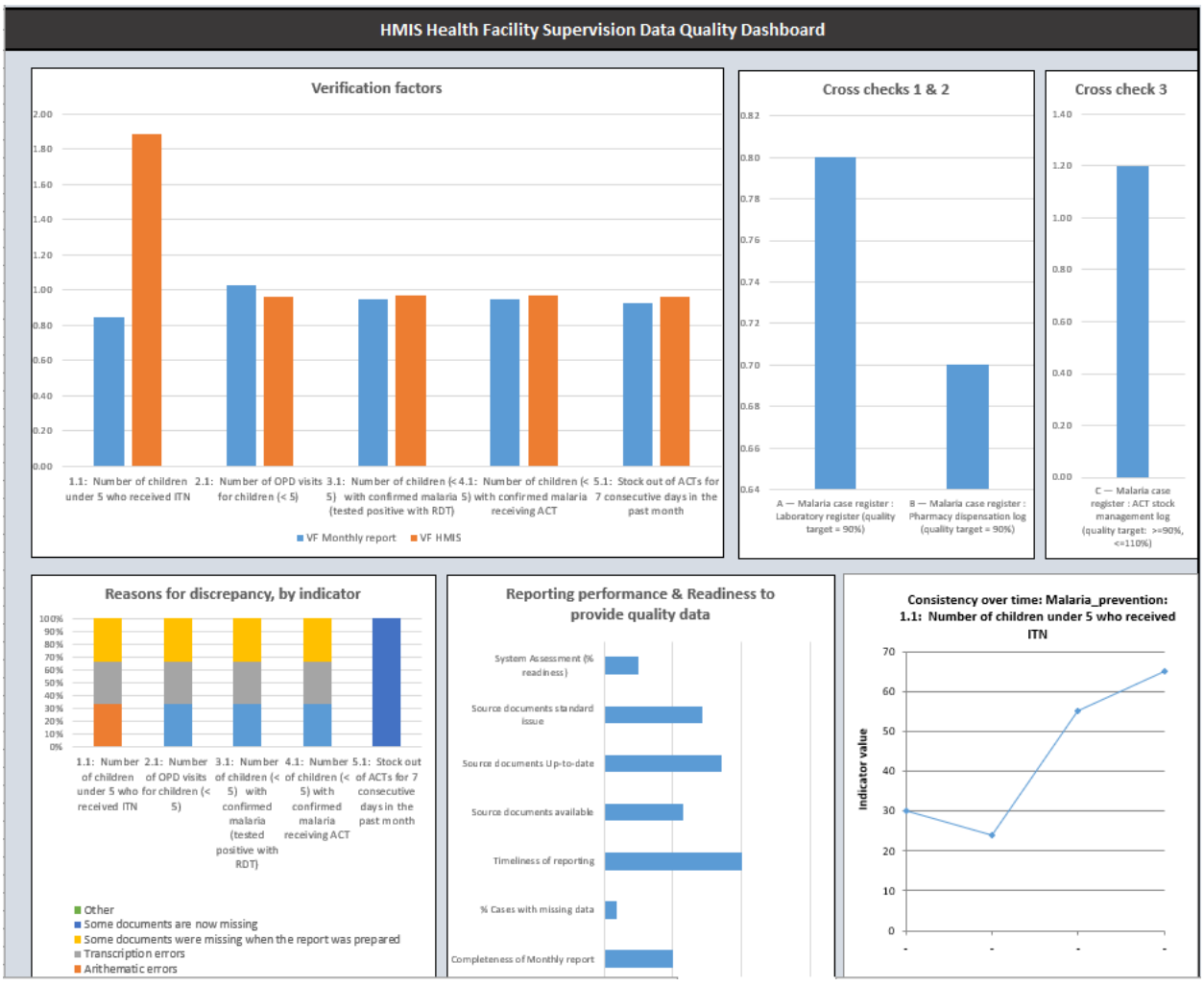
REVIEWING THE MRDQA RESULTS

Auto-Populated MRDQA Dashboard

After all data for each health facility have been captured, the tool is programmed to auto-populate data in the relevant graphs. These graphs are collated into dashboards. There are two types of dashboards in the Dashboard tab: health facility-specific dashboards and aggregate dashboards.

Health facility-specific dashboards are located at the bottom of each facility page. This dashboard visually summarizes facility-specific information in colored graphs, as shown in Figure 16.

Figure 16. HMIS health facility-specific dashboard



The Dashboard tab presents aggregate results from the sampled health facilities. Both aggregate results and more detailed information are available. The aggregate results mirror the major sections of the MRDQA tool and focus on completeness and timeliness, accuracy of reporting, cross-checks, consistency over time, and system assessment. The Dashboard tab also captures more granular information on accuracy, completeness, and consistency. Figures 17a–d show examples of a completed dashboard.

Figure 17a. Overall Results section of the Dashboard tab

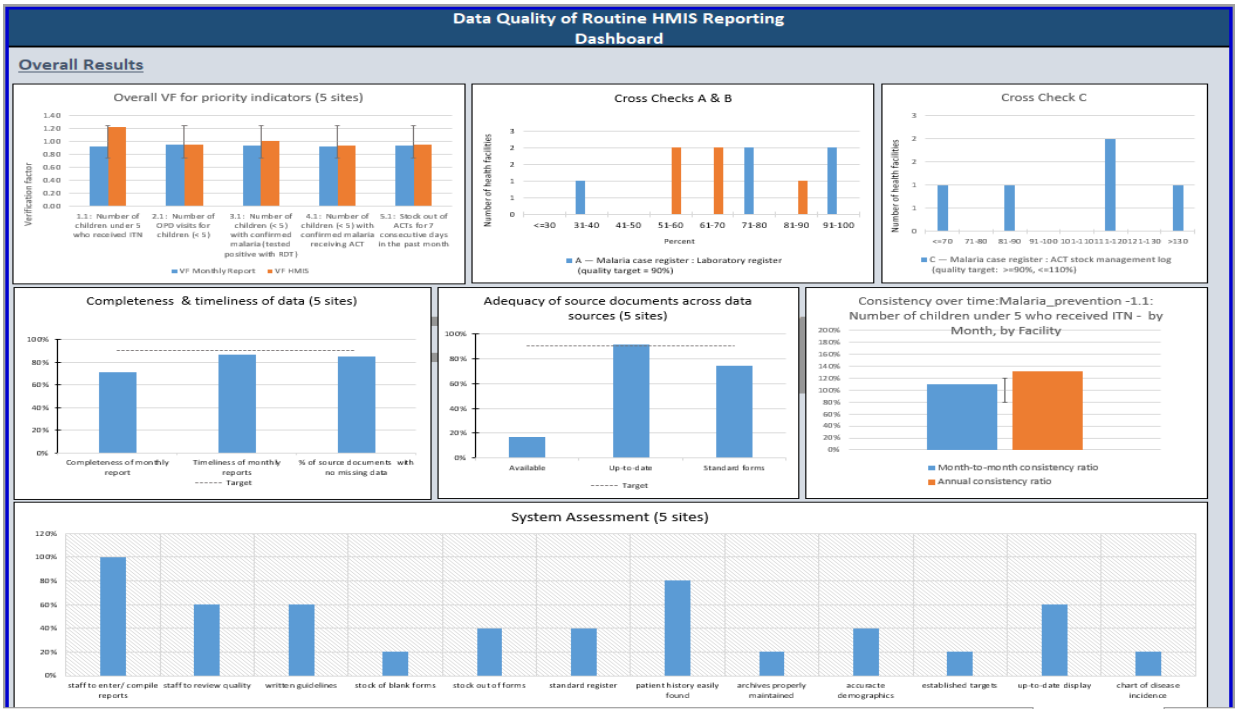


Figure 17b. Accuracy: Detailed Results section of the Dashboard tab

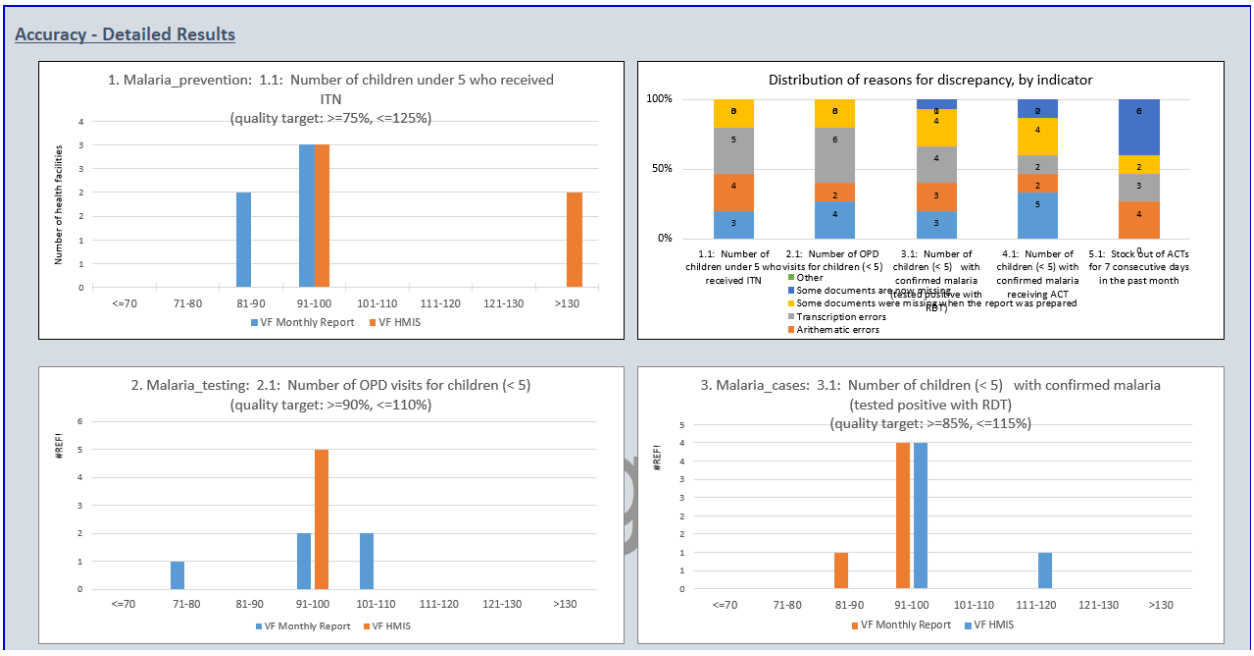


Figure 17c. Completeness: Detailed Results section of the Dashboard tab

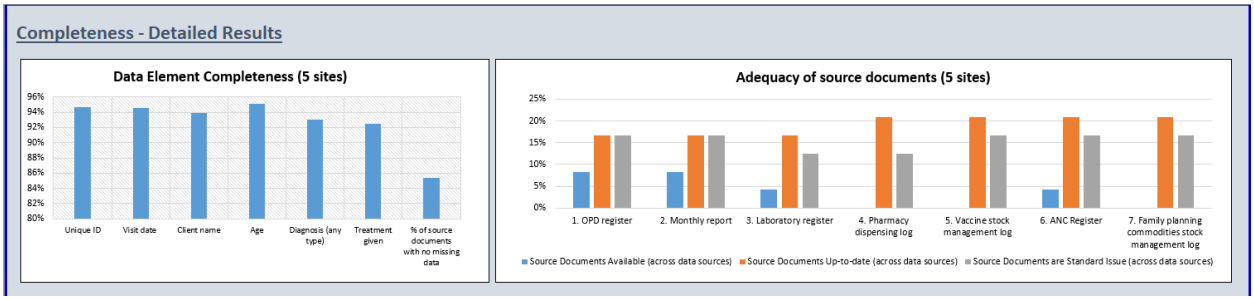
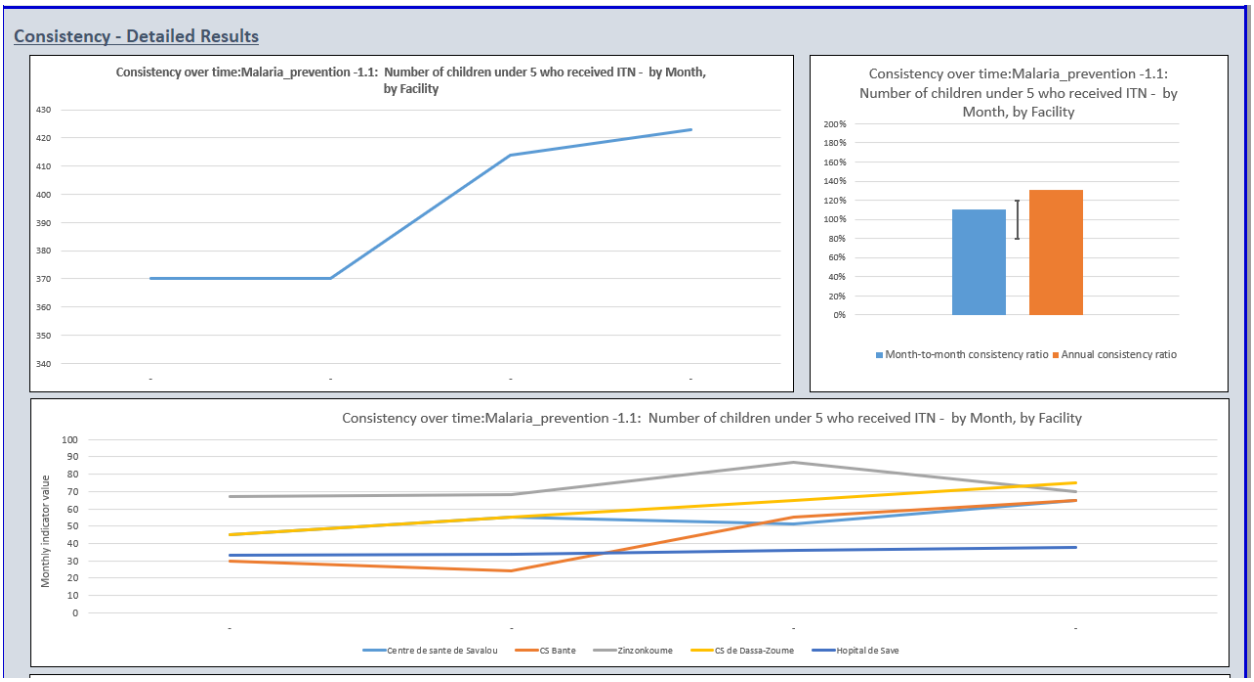


Figure 17d. Consistency: Detailed Results section of the Dashboard tab



Summary of Comments Tab

The Summary of Comments tab, one of the last visible tabs in the workbook, contains a list of all comments noted throughout the tool, by data element (Figure 18). Each data element is listed, followed by the comments made for each facility, so that patterns can be easily recognized across facilities. Use this tab to note systematic occurrences of data quality problems.

Figure 18. Summary of Comments tab

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1	**Summary of comments by data element**				Go to facility information tab										
2					Go to indicators										
3														II. Data Accuracy: 1.) Mala	
4	Facility Number	Health facility name	District	A. Completeness of Malaria Monthly Report	B. Timeliness of Submission of Monthly Report	Data Element / Source Document Completeness #1	Data Element / Source Document Completeness #2	Data Element / Source Document Completeness #3	Data Element / Source Document Completeness #4	Data Element / Source Document Completeness #5	Data Element / Source Document Completeness #6	Data Element / Source Document Completeness #7	Data Element / Source Document Completeness Total	Source document re-count	HMIS monthly report value
5	1.	Facility A	District A	-	-	-	-	-	-	-	-	-	-	-	-
6	2.	Facility B	District A	-	-	-	-	-	-	-	-	-	-	-	-
7	3.	Facility C	District A	-	-	-	-	-	-	-	-	-	-	-	-
8	4.	Facility D	District A	-	-	-	-	-	-	-	-	-	-	-	-
9	5.	Facility E	District A	-	-	-	-	-	-	-	-	-	-	-	-

Action Planning for System Strengthening

Each health facility tab has a facility-specific section for recording findings and recommendations to improve data quality. Use the spaces provided for each facility to record the data quality problems found, a feasible solution to resolve the problem, responsible staff or unit, and a timeline for implementing the solution. Figure 19 shows the data quality improvement plan.

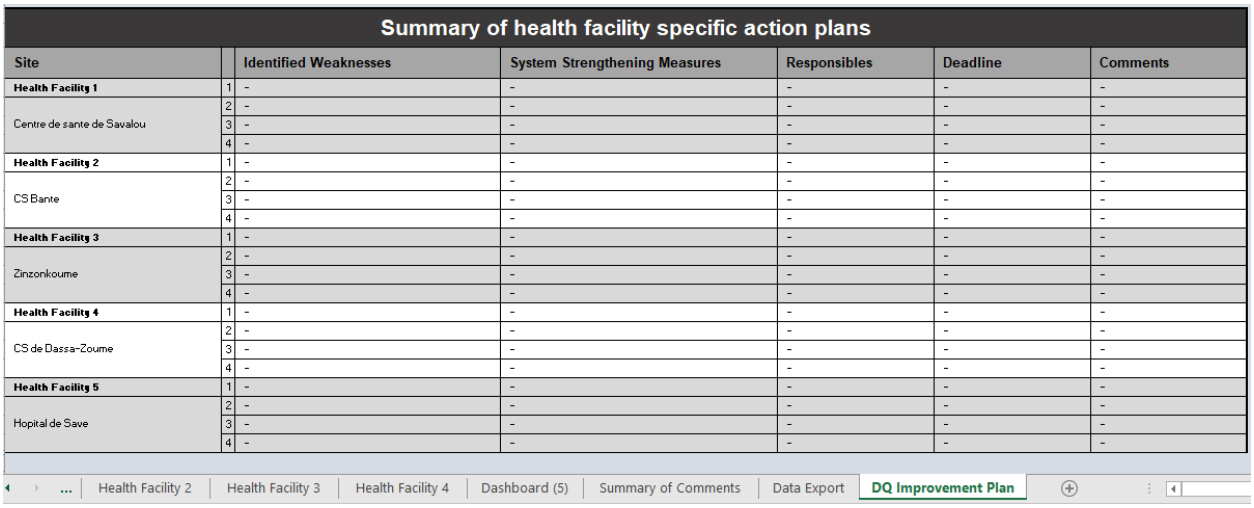
District teams should track the recommendations and ensure that they are implemented by the next round of supervision. District teams can also help look for the resources and technical expertise required, if and as appropriate.

Figure 19. Data quality improvement plan for the health facility

124	**Data Quality Improvement Plan for the Health Facility**				
125	*Please list the primary gaps or weaknesses in the data management system at the facility. What are the threats , or potential threats, to data quality ? For each item cited, please include action points that the facility can implement to strengthen the data management at the facility. Please be realistic in your recommendations. Also include the responsible staff and the date by which the intervention should be completed*				
126		**Identified Weaknesses**	**Description of Action Point**	**Responsible(s)**	**Time Line**	**Comments**
127	1					
128	2					
129	3					
130	4					

The action plans from all facility tabs are pulled together for ease of review in the Summary of Action Plans tab (Figure 20). After the district team has completed the assessment, it is recommended that the district- or national-level teams draft an overarching action plan to deal with systematic problems that occur at the majority of facilities.

Figure 20. Summary of health facility-specific action plans



Summary of health facility specific action plans

Site		Identified Weaknesses	System Strengthening Measures	Responsibles	Deadline	Comments
Health Facility 1	1	-	-	-	-	-
Centre de sante de Savalou	2	-	-	-	-	-
	3	-	-	-	-	-
	4	-	-	-	-	-
Health Facility 2	1	-	-	-	-	-
CS Bante	2	-	-	-	-	-
	3	-	-	-	-	-
	4	-	-	-	-	-
Health Facility 3	1	-	-	-	-	-
Zinzonkoume	2	-	-	-	-	-
	3	-	-	-	-	-
	4	-	-	-	-	-
Health Facility 4	1	-	-	-	-	-
CS de Dassa-Zoume	2	-	-	-	-	-
	3	-	-	-	-	-
	4	-	-	-	-	-
Health Facility 5	1	-	-	-	-	-
Hopital de Save	2	-	-	-	-	-
	3	-	-	-	-	-
	4	-	-	-	-	-

... | Health Facility 2 | Health Facility 3 | Health Facility 4 | Dashboard (5) | Summary of Comments | Data Export | DQ Improvement Plan

REFERENCES

ICF. (2017). *iCCM data quality assessment toolkit*. Rockville, MD: ICF. Retrieved from https://www.childhealthtaskforce.org/sites/default/files/2018-12/iCCM%20Data%20Quality%20Assessement%20Toolkit%20%28September%202017%29_RaCE%20Meeting%202017.pdf.

MEASURE Evaluation. (2017). *Data quality audit tool.* Chapel Hill, NC: MEASURE Evaluation, University of North Carolina. Retrieved from https://www.measureevaluation.org/resources/publications/ms-08-29.

MEASURE Evaluation. (2020). Malaria Routine Data Quality Assessment Tool: A Checklist to Assess the Quality of Malaria Program Data. Chapel Hill, NC, USA: MEASURE Evaluation, University of North Carolina. Retrieved from https://www.measureevaluation.org/resources/publications/tl-20-85/.

World Health Organization (WHO). (2015). *Global technical strategy for malaria 2016-2030*. Geneva, Switzerland: WHO. Retrieved from https://www.who.int/malaria/publications/atoz/9789241564991/en/.

World Health Organization (WHO). (2017). *Data quality review (DQR) toolkit.* Geneva, Switzerland: WHO. Retrieved from https://www.who.int/healthinfo/tools_data_analysis/dqr_modules/en/

World Health Organization (WHO). (2018). *Malaria surveillance, monitoring & evaluation: A reference manual.* Geneva, Switzerland: WHO. Retrieved from https://www.who.int/malaria/publications/atoz/9789241565578/en/.

APPENDIX A. KEY INDICATORS IN THE MRDQA TOOL

1.0—Malaria prevention	
1.1	Number of children under 5 who received ITN
1.2	Number of pregnant women who received ITN
1.3	Number of nets distributed to pregnant women
1.4	Number of nets distributed through routine immunization
1.5	Total number of nets distributed
2.0—Malaria testing	
2.1	Number of OPD visits for children (< 5)
2.2	Number of children (< 5) with fever
2.3	Number of children (5-14) with fever
2.4	Number of people (15+) with fever
2.5	Number of children (< 5) with fever tested (rapid diagnostic test [RDT] or microscopy)
2.6	Number of children (5-14) with fever tested (RDT or microscopy)
2.7	Number of people (15+) with fever tested (RDT or microscopy)
3.0—Malaria cases	
3.1	Number of children (< 5) with confirmed malaria (tested positive with RDT)
3.2	Number of children (5-14) with confirmed malaria (tested positive with RDT)
3.3	Number of people (15+) with confirmed malaria (tested positive with RDT)
3.4	Number of pregnant women with confirmed malaria (tested positive with RDT)
3.5	Number of cases tested negative with RDT across all categories
3.6	Number of confirmed malaria cases
3.7	Number of presumed malaria cases
3.8	Number of children (<5) with severe malaria
3.9	Number of children (5-14) with severe malaria
3.10	Number of people (15+) with severe malaria
4.0—Malaria treatment	
4.1	Number of children (< 5) with confirmed malaria receiving ACT
4.2	Number of children (5-14) with confirmed malaria receiving ACT
4.3	Number of people (15+) with confirmed malaria receiving ACT
4.4	Number of children (<5) receiving ACT
4.5	Number of children (5-14) receiving ACT
4.6	Number of people (15+) receiving ACT
4.7	Number of severe cases referred
4.8	Number of cases that tested negative with RDT receiving ACT
5. 0—Malaria commodity availability	
5.1	Stockout of ACTs for 7 consecutive days in the past month
5.2	Stockout of RDTs for 7 consecutive days in the past month
5.3	Stockout of SP for 7 consecutive days in the past month
5.4	Stockout of injectable artesunate for 7 consecutive days in the past month
5.5	Stockout of rectal artesunate for 7 consecutive days in the past month
5.6	Stockout of ITN for 7 consecutive days in the past month
6.0—Malaria mortality	
6.1	Total number of malaria deaths (inpatient only)

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