Malaria Quarterly Report Indicator Standardization

Updated July 2022

The Malaria Quarterly Report (QR) is the primary data resource in M-DIVE for understanding malaria incidence, burden, and progress metrics in PMI-supported countries. It includes data provided by countries each quarter, based on what they have available from their existing data collection systems. This document describes how the different indicators used in each data submission are aligned to match the consistent set of indicators that appear in the Malaria QR.

Indicator standardization: Each quarter, PMI requests and collects a standardized list of indicators that are used to measure key metrics on malaria incidence and prevalence, medical supply and facility logistics, population, and malaria campaigns. The full list of these indicators as they are described for use in M-DIVE is available in the Malaria Quarterly Report Data Dictionary.

Since these M-DIVE standard definitions might not match the exact indicators defined within each country's existing data systems, the indicators that partner country teams submit each round may appear in one of the following ways:
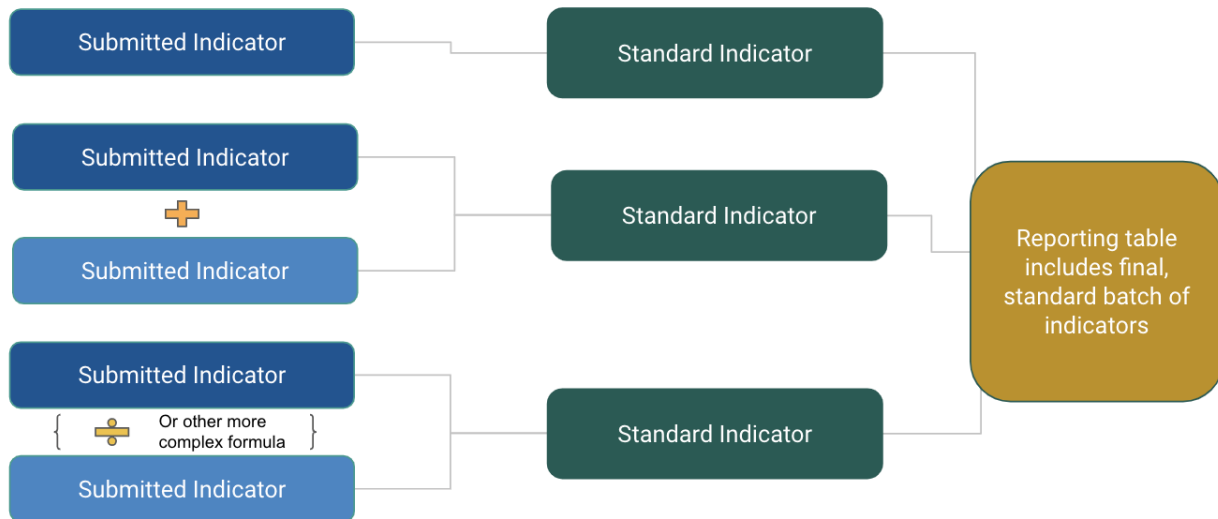
- Submitted as **an exact match** of the standard indicator.
- Submitted under **a different name or alias** to the standard indicator, but otherwise matching the standard definition.
- Submitted **as separate, disaggregated indicators** that can be combined to calculate the standard indicator.
- Submitted as a **nonstandard indicator** that does not have an obvious match amongst the set of defined standard indicators.

The submitted indicators can vary for each country, time period, and indicator. As such, the QR data process in M-DIVE includes a number of set "**mappings**" that describe how the submitted data relates to the standard indicators made available in the final M-DIVE data set.

These mappings define in a formulaic, repeatable way how the indicators in the submitted data need to be adjusted, renamed, or otherwise transformed in order to create a unified output. This ensures that the Quarterly Report data in M-DIVE has one consistent set of indicator definitions that can be used across countries, time periods, and applications. Below is a diagram of some common approaches to mapping a submitted indicator to a standard indicator:

- a **1 to 1 mapping** when there is an exact match or simple renaming needed for a submitted indicator,

- a **many to 1** mapping when multiple submitted indicators are added together to map to a standard indicator, or combined according to some more complex formula.

Challenges and Approaches:

Aligning submitted indicators with standard indicators comes with a set of challenges for which we have designed approaches, outlined in the table below.

Challenges	Approaches
The submitted indicators for a standard indicator of interest may differ not just across countries, but also across separate submissions or data systems for the same country.	Mappings can be defined as applicable to only certain countries and/or time periods. For example, a country may have submitted "Number of Severe Malaria Cases" for a period of time but later split that into "Number of Severe Malaria Cases Less than 5 Years" and "Number of Severe Malaria Cases Greater than 5 Years".
One or more indicators provided by country teams might map to the same M-DIVE standard indicator.	A 1 to 1 mapping is applied when a submitted indicator matches directly to a standard indicator. For example, submitted indicators "Number of Severe Malaria Cases" and "Severe Malaria" both match the standard indicator named "Severe Cases".
	A many to 1 mapping is applied when several submitted indicators are combined to match to one standard indicator. For example, submitted

	indicators "Number of Severe Malaria Cases Less than 5 Years" and "Number of Severe Malaria Cases Greater than 5 Years" are combined to match the standard indicator named "Severe Cases".
	Whenever possible, we try to map a submitted indicator to a standard indicator, even if nulls are present.
	When multiple submitted indicators map to one standard indicator and the submitted indicators have at least one non-null value, the submitted indicators will be combined to form standard indicators, ignoring the presence of null values.
M-DIVE standard indicators might be defined as a more complex combination of provided indicators, beyond a simple summation, such as a ratio or a more elaborate formula.	Some standard indicators are derived from other standard indicators to which a formula is applied. For example, "Severe Case Rate" is derived from dividing the sum of "Severe Cases" by the sum of "Tested Cases".
There may be multiple ways to derive an M-DIVE standard indicator from the submitted indicators provided.	When there are multiple conflicting ways to derive a standard indicator for the same time and place, the pipeline will always prioritize the best of all possible mappings. However, in some cases, it may be necessary to reach out to the in-country teams to identify their preferred approach on which derivation to use.
	If none of the expected submitted indicators for a given standard indicator exist in the data, we skip mapping that standard indicator. Similarly, if submitted indicators do not map to any standard indicator, these submitted indicators are skipped.

If you have any questions, please submit them to Alaine Knipes (aknipes@cdc.gov) and Misun Choi (mchoi@usaid.gov) on the PMI Surveillance & Informatics team, or to support@civisanalytics.com. If you would like to learn more about additional topics on M-DIVE, please click the links below for further reading.

Important Resources

- [Malaria Quarterly Report Data Pipeline Overview: How Quarterly Report Data Are Processed in M-DIVE](#)
- [Malaria Quarterly Report Quality Control Processes Overview in M-DIVE](#)
- [Malaria Quarterly Report Time Standardization](#)
- [Malaria Quarterly Report Format Standardization](#)
- [Malaria Quarterly Report Geographic Standardization](#)
- [Malaria Quarterly Report](#) (M-DIVE access required)
- [M-DIVE Help Center](#) (M-DIVE access required)