A Guide for Developing Data Dictionaries

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33rd SMERG Meeting, Kigali Rwanda

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PMI Measure Malaria

Background

- Appropriate analysis and interpretation of indicators requires understanding of indicator calculation
- Data dictionary not always accessible to all end users
- Presence of historic data elements and indicators in RHIS
- Setting up the WHO/GMP malaria module includes data mapping

Purpose of the guide

- Reference resource to ensure consistency and harmonization of calculation of indicators
- Support accessibility of the data dictionary to users at all levels
- Enable a shared and precise understanding of data elements, their disaggregation, and indicator definitions
- Provide guidance for handling historical data
- Provide guidance on naming convention for metadata revisions
- Define and clarify the process of updating the data dictionary

Implementing the guide will enable updating of the HMIS to ensure the 'right' data is captured and comprehensively defined

Outline of the Guide

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2 PURPOSE AND OBJECTIVES

3 METHODOLOGY

3.1 ENGAGEMENT PROCESS

3.1.1 Identify and engage key stakeholders

3.1.2 Technical workshop and finalizing the dictionary

3.1.3 Technical Process

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4 FORTHCOMING ADDENDUM: USING THE DIGITAL SOLUTION

5 ANNEXES

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5.3 ANNEX 3: TABLE 3. INDICATOR DEFINITIONS

Methodology: Engagement Process

- Identify and engage key stakeholders (NMCP, HMIS, IDSR, Community Health, CRVS, MNCH, & other relevant program areas)
- Schedule a kick-off meeting with the stakeholders:
  - Discuss collective needs from the data dictionary
  - Review objectives of the data dictionary guide
  - Agree on the approach
  - Nominate a technical working group
- Hold technical workshop to develop the data dictionary
- Solicit feedback from the stakeholders
- '*Finalize*' the data dictionary
- Implement the digital solution

Methodology: Technical Process

Step 1: Identify routine data reporting systems that capture malaria data

- Identify which of the systems are included in the DHIS2*
- Identify and gather the data collection and reporting tools incl. supporting documentation
- Identify the key datasets for each of the system
- Review the indicators reported in each platform and dataset

Developing a Data Dictionary – The Eight Step of the Technical Process

1. **Identify routine data reporting systems**
2. Identify data elements that are reported in multiple systems; map those that are not
3. Map and define data elements used to define each indicator
4. Define information to be displayed in the data dictionary
5. Indicate how to store and treat historical data
6. Indicate how to interpret historical data
7. Provide guidance for documenting changes
8. Repeat for each routine data reporting system

Methodology: Technical Process

Step 2: Identify data elements reported by multiple routine systems

- List the data elements reported from multiple routine systems
- Include data elements not synced across systems
- Include information on disaggregation (sex, age, pregnancy status), date of last use, platform (inpatient, outpatient)

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Methodology: Technical Process

Step 3: Identify, map and define data elements used to define each indicator

- Identify data elements that define the indicators listed in step 1
- Describe how each data element is derived
- Specify denominators and respective data sources
- Indicate the year the indicator was last used

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Methodology: Technical Process

Step 4: Define information to be displayed in the data dictionary

- Define parameters for each data element included in the data dictionary i.e., identifier, name, type etc.
- Similar parameters defined for indicators incl. geographical level, disaggregation etc.
- Annotation such as whether ‘zero’ signifies missing data or the value ‘0’

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Methodology: Technical Process

Step 5: Indicate how to store and treat historical data

- Make clear determination which data elements and indicators are no longer used
- Define parameters incl. when they were last used and reasons for discontinuing use
- Decide where and how to archive the data considering future accessibility
- Annotate in the data dictionary if 'new' data element is replacing historical data

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Methodology: Technical Process

Step 6: Indicate how to go back and look at and interpret historical data

- Guidance is needed for comparing data over time
- Specify assumptions made when comparing trends for indicators that have been updated

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Methodology: Technical Process

Step 7: Provide guidance for documenting changes

- Keep a record of the changes incl.
  - Updates to definitions
  - Renaming of data elements
  - Disaggregation of indicators
  - Any updates to appropriate annotation

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Methodology: Technical Process

Step 8: Repeat for each system

- If the routine reporting systems are not integrated, repeat steps 2-5 for each system
- Steps 6 and 7 are applied consistently across all systems

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Using and Updating the Guide

- All stakeholders and users at all levels should be oriented on the data dictionary:
  - Regional or district orientation sessions for key SME staff
  - Integrate the data dictionary into DHIS2 and malaria SME trainings
  - Support for use of the dictionary through ongoing training and supervision
- Data dictionary to be reviewed and updated bi-annually, every 5 years or as needed (changes in global level indicators, revision to data collection tools)
- Ensure consultative process during review and updating
- Gather feedback from users during regular supervision or training schedules

Limitations

- Digital solution subject to constraints in DHIS2 e.g., requirement for internet connectivity
- May not improve immediate access to information on data structure; but promotes improved access to users at all levels
- Developing data dictionary using the guide may not generate **immediate** solutions to the bottlenecks identified in data analysis and interpretation

Asks for the SMERG

- Feedback on usefulness of the document for countries
- Any additional areas to be considered in this guide
- SMERG involvement in reviewing and/or providing inputs

This information was made possible by the generous support of the American people through the United States Agency for International Development (USAID) and the U.S. President's Malaria Initiative (PMI) under the terms of the PMI Measure Malaria Associate Award No. 7200AA19LA00001. PMI Measure Malaria is implemented by the University of North Carolina at Chapel Hill, in partnership with ICF Macro, Inc.; Tulane University; John Snow, Inc.; and Palladium International, LLC. The contents do not necessarily reflect the views of USAID/PMI or the United States Government.

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