


Validating the Effectiveness of a Rapid Assessment Tool for Routine Health Information Systems

October 2018





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David Boone led the tool's technical development, with contributions from Tariq Azim, Suzanne Cloutier, Fanor Joseph, Sergio Lins, and Stephanie Mullen—all of MEASURE Evaluation. Theo Lippeveld (John Snow, Inc., and formerly with MEASURE Evaluation) also contributed.

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ABBREVIATIONS

CMED	Central Monitoring & Evaluation Division
COD	cause of death
EWARN	Early Warning Alert and Response Network
HMN	Health Metrics Network
HSSP II	Health Sector Strategic Plan Phase II
ICT	information and communication technology
MFL	master facility list
MOH	Ministry of Health
PRISM	Performance of Routine Information System Management
RHIS	routine health information system(s)
TWG	technical working group
USAID	United States Agency for International Development

INTRODUCTION

The World Health Organization (WHO), with the United States Agency for International Development (USAID)-funded MEASURE Evaluation, has identified and harmonized standards for data management of Routine Health Information Systems (RHIS). Standards, or best practices, promote the production of timely, accurate data for use in program planning, monitoring, and evaluation. An assessment tool, the RHIS Rapid Assessment Tool, has been developed to help identify gaps and weaknesses (aspects of health facility and community information systems that do not reach the identified standard) and, thus, to strengthen RHIS and improve the data. The tool compares a country RHIS to the global standards, and indicates where resources should be invested to improve the system.

The standards in the RHIS Rapid Assessment Tool were identified largely from expert meetings convened by MEASURE Evaluation and WHO in 2012–2014. In May 2012, MEASURE Evaluation hosted the International Workshop on Guidelines for Data Management Standards in Routine Health Information Systems, in Johannesburg, South Africa. RHIS experts gathered from around world to identify standards and best practices for RHIS, particularly for data management—the element of RHIS that had been identified as the most problematic globally following implementation of the Health Metrics Network (HMN) Country Assessment Tool in more than 85 countries (2008). The discussions were organized around four thematic areas: (1) user’s data and decision support needs; (2) data collection, processing, analysis, and dissemination of Information; (3) data integration and interoperability; and (4) governance of RHIS data management. The standards were field-tested in Nigeria and Bangladesh by MEASURE Evaluation in 2013–2014.

In June 2014, WHO hosted the Technical Consultation on Monitoring Results with Health Facility Information Systems, which took place in Glion-sur-Montreux, Switzerland. The workshop output was developed into a toolkit according to an organizing framework for the key components of a country health facility information system. Those components were (1) governance, an overarching component; (2) data collection and management; (3) data quality and analysis; and (4) data dissemination and use. Within each section, key action steps are identified for countries and provided with examples of available tools and resources to support country action. A checklist of key items and attributes is provided to facilitate monitoring of progress toward defined standards. The checklist is also available as a separate spreadsheet.

WHO and MEASURE Evaluation decided to harmonize the two resulting lists of standards, which then became the RHIS Rapid Assessment Tool. The two source documents are available at the following links:

- WHO Health Facility and Community Information System Toolkit: http://www.who.int/healthinfo/facility_information_systems/en/
- MEASURE Evaluation Guidelines on Data Management Standards: <https://www.measureevaluation.org/resources/publications/ms-15-99>

The RHIS Rapid Assessment Tool facilitates comparison of country RHIS with global standards, to identify gaps and weaknesses in the system as part of strategic planning for RHIS. The tool was tested in four country workshops (Madagascar, Malawi, Myanmar, and northern Syria) to validate its effectiveness. Workshop

organizers then provided feedback and recommendations to help modify the tool to better meet the needs of users. The Republic of the Gambia provided feedback without testing the tool in a workshop setting.

This document describes the validation process and its results.

METHODS

Once the RHIS Rapid Assessment was developed to gauge adherence to the global standards, the next step was to test the theory that a rapid assessment tool, implemented in a workshop with RHIS stakeholders, was effective in identifying shortcomings in RHIS and informing RHIS strategic planning. With WHO, MEASURE Evaluation identified focal countries for implementing the tool.

Test countries were identified based on country health-sector planning cycles. For optimal implementation of the RHIS Rapid Assessment Tool, a country is nearing the end of a five-year planning cycle and beginning to plan for the next five years. This timing was optimal, because information obtained from implementing the tool could be used to inform planning for the RHIS.

In addition, countries were sought based on their willingness to engage in the Roadmap for Health Measurement and Accountability.¹ The roadmap articulates a plan for a shared strategic approach to support effective measurement and accountability systems for a country's health programs. It outlines smart investments that countries can adopt to strengthen basic measurement systems and to align partners and donors around common priorities. It offers a platform for development partners, technical experts, implementers, civil society organizations, and decision makers to work together for health measurement in the post-2015 era.

These so-called forerunner countries were approached and several were targeted for pilot testing of the RHIS Rapid Assessment Tool.

The validation was to implement the tool in a facilitator-guided workshop with RHIS stakeholders from all levels of the country's health system and the private sector. Subsequently, the extent to which the information obtained in the workshop was used to inform RHIS planning was measured through ongoing communication with stakeholders and a review of the country's planning documents, such as the HIS strategic plan or RHIS performance evaluations.

The Rapid Assessment Tool

The following list of the tool standards is grouped by domain and subdomain:

1. Management and Governance
 - 1.1 Policies & Planning
 - 1.2 Management
 - 1.3 Human Resources
2. Data and Decision Support Needs
 - 2.1 Data Needs
 - 2.2 Standards and System Design

¹ <https://www.healthdatacollaborative.org/fileadmin/uploads/hdc/Documents/the-roadmap-for-health-measurement-and-accountability.pdf>

3. Data Collection & Processing

3.1 Collection and Management of Individual Client Data

3.2. Collection, Management, and Reporting of Aggregated Facility Data

3.3 Data Quality Assurance

3.4 Information and Communication Technology (ICT)

4. Data Analysis, Dissemination, & Use

4.1 Data Analysis

4.2 Information Dissemination

4.3 Data Demand and Use

The country-level adherence to the global standards is judged according to a five-point Likert-type scale:

- 0 = No answer/not applicable
- 1 = Not present, needs to be developed
- 2 = Needs a lot of strengthening
- 3 = Needs some strengthening
- 4 = Already present, no action needed

The responses are grouped within the standard subdomains, and then the average of responses is calculated for the subdomain. The results are shown as horizontal 100 percent bar charts in the RHIS Rapid Assessment Tool to allow automated analysis of findings. Findings are likewise disaggregated by level of the health system, with different graphics for each subdomain in each level. Summaries of results for each domain are also shown.

A comments field permits respondents to explain their responses and describe why a given standard is not being met or is in the process of being met. Comments help to understand the gaps and weaknesses in the system and select interventions to address the gaps. Guidance for selecting the appropriate response is also available in the tool, as well as a list of possible priority actions that can be taken to address the identified weakness.

The resulting output can then be used to prioritize system strengthening measures for the RHIS. The analysis and dissemination of the findings should be followed by action planning to develop strategies and interventions to fill gaps identified by the assessment.

Pilot Countries and the Validation Process

The RHIS Rapid Assessment Tool was implemented in four countries as part of the tool validation exercise, in Malawi and Madagascar by MEASURE Evaluation, and in Myanmar and Northern Syria by WHO. Feedback was also provided by RHIS stakeholders in the Republic of the Gambia, but details on the workshop could not be obtained. The implementation began with the workshop in Malawi in 2016 and continued in summer of 2017 with the workshop in Myanmar. Northern Syria implemented the Rapid Assessment Tool with assistance from WHO in December 2016. WHO and MEASURE Evaluation staff met

in Geneva later that December to review feedback and make recommended changes to the tool. The most notable change was the reduction and consolidation of the standards from 160 discreet standards to 97. The resulting tool was lighter and easier to implement and could be completed in one day in a workshop setting. In July 2017 the revised tool was implemented in Madagascar, for which a French language version was developed.

Some delays were experienced in the strategic planning following the assessments. By 2018 all four countries had developed RHIS Strategic Plans or other planning documents. Other evidence of the tool's usefulness to the strategic planning process, such as feedback from workshop participants, workshop reports, and communications with stakeholders, helped complete the picture of the tool's effectiveness for identifying gaps in country RHIS and informing strategic plans.

The following section gives a country-by-country description of workshop implementation and subsequent use of the findings for planning.

RESULTS

Malawi

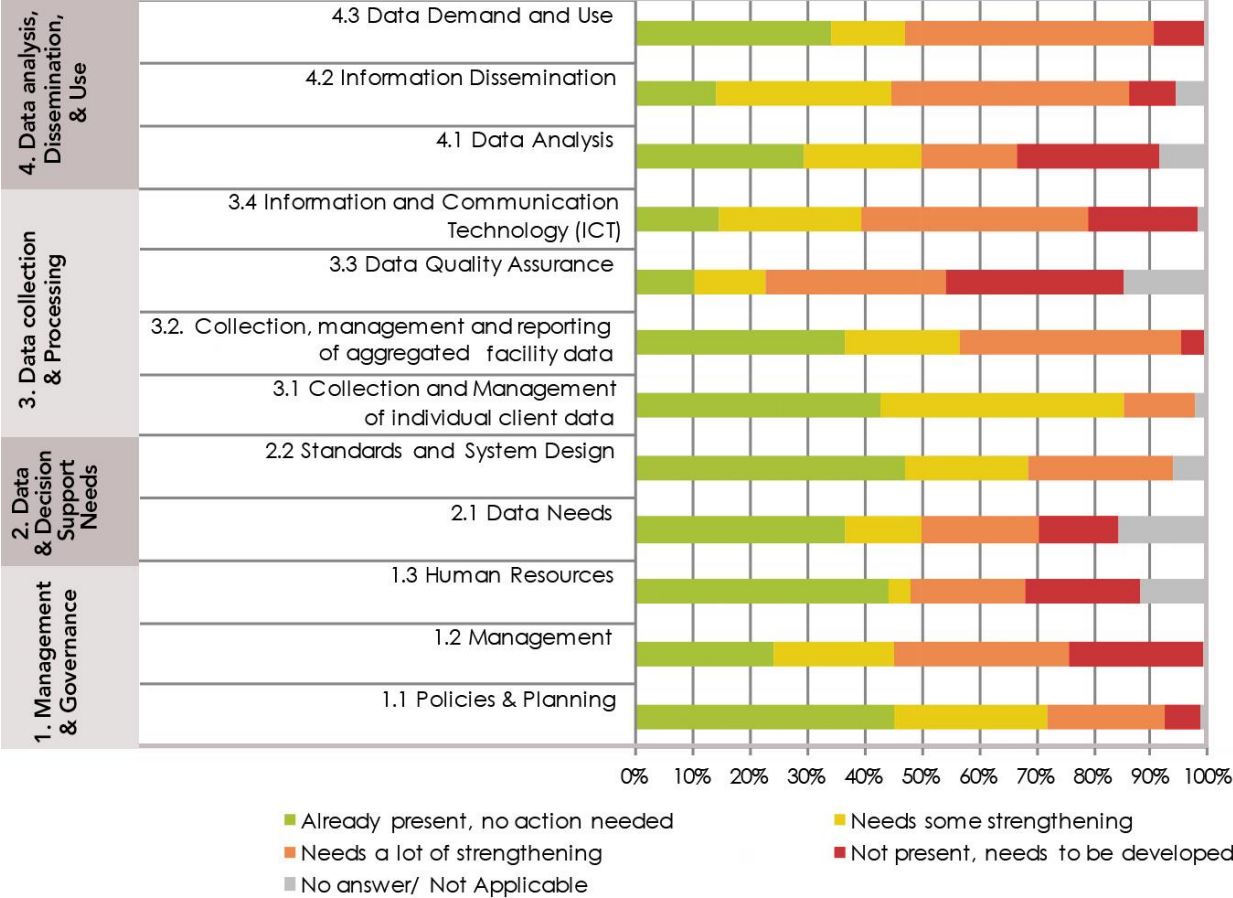
Gaps Found in the RHIS Rapid Assessment

The Malawi workshop, led by MEASURE Evaluation, took place in April 2016 with RHIS stakeholders from all levels of the health system and the private sector. The workshop participants were grouped by health system level (e.g., national, regional, district, and service delivery point), and each group went through the checklist to score the standards for their level. The workshop required the better part of two days to implement.

Figure 1 shows the workshop output from the Malawi pilot test. The 100 percent bar chart identifies the priority gaps by the subdomains (in italics) with the least green and yellow, or the most red and orange.

1. Management & Governance: *Management* (which includes Standard Operating Procedures (SOPs), Leadership, Feedback, Supervision, Assessments and Use of Assessments, and the Master Facility List)
2. Data Collection & Processing: *Data Quality Assurance and ICT*
3. Data Analysis, Dissemination & Use: *Information Dissemination*

Figure 1. RHIS Rapid Assessment Workshop output—Malawi 2016



The Malawi Ministry of Health (MOH) Central Monitoring & Evaluation Division (CMED) published in its April 2016 Bulletin (see Annex 1) the following recap of the RHIS Rapid Assessment Workshop:

While there is need to strengthen almost all aspects of RHIS, evidently data demand and use, information dissemination and ICT infrastructure and equipment require a lot of strengthening. The findings of this evaluation will be incorporated into the priority matrix for the M&E framework for HSSP II to ensure that the gaps identified will be addressed.²

How the Gaps Are Addressed in Planning

When the priority matrix for the Health Sector Strategic Plan Phase II (HSSP II)³ was developed in July 2017, it contained the above elements as priorities for health system strengthening under Objective 6: Generate quality information and make it accessible to all intended users for evidence-based decision-making, through standardized and harmonized tools across all programs. The following objectives align with findings from the RHIS rapid assessment:

- 5.6.1 Strengthen national capacity for planning, coordination, and implementation of health information systems.
- 5.6.3 Improving data quality at all levels.
- 5.6.5 Enhance adoption of ICT systems and promote innovations in the use of paper-based tools for routine data management (data collection, data analysis, dissemination and use).
- 5.6.9 Enhance routine data and research reporting and utilization at all levels.

The Malawi HSSP II, Section 2.2.4: Situation Analysis/service provision/Health Information Systems (page 18) summarizes the assessment:

Data quality is still poor due to challenges in recording, extracting and reporting data, with most facilities not able to collect and submit the required data on time. Another key weakness is limited use of data that can be linked to the poor quality of data. The MoH HIS relies on manual data collection and reporting processes, which makes it difficult to record, extract, share and use the data. Although some systems have been computerized there is no interoperability in their current state. There is inadequate human resource capacity and poor ICT infrastructure at all levels. While effort towards alignment has been made, some of the research activities undertaken in the country are commissioned, conducted and funded externally and do not align with national health priorities included in the HSSP. Although there are efforts to ensure research results are disseminated, gaps also exist in the management and sharing of research results at the local level, due to lack of a documentation system that supports the sharing of research reports and data in order to inform decision-making.

These shortcomings were then addressed in the HSSP II in Section 5: Strategies for the HSSP II, Section 5.6: Objective 6: Generate quality information and make it accessible to all intended users for evidence-based decision-making, through standardized and harmonized tools across all programs (page 46).

²https://www.healthdatacollaborative.org/fileadmin/uploads/hdc/Documents/Country_documents/Malawi_HDC_meeting_summary_December2017.pdf

³http://www.nationalplanningcycles.org/sites/default/files/planning_cycle_repository/malawi/health_sector_strategic_plan_ii_030417_smt_dps.pdf

The M&E Plan, in Section 8 of the HSSP II, lists activities to address these weaknesses (pages 76–77), such as:

- Finalize development and implement guidelines and standard operating procedures for HIS.
- Conduct regular supervision and on-job training.
- Conduct regular data validation exercise for reporting facilities.
- Conduct bi-annual data quality assessments.
- Increase the capacity of CMED to present health information in user friendly formats.

Myanmar

Gaps Found in the RHIS Rapid Assessment

The Myanmar RHIS rapid assessment was conducted in July 2016. The output from the workshop (Figure 2) was used to draft the HIS Strategic Plan 2017–2021.⁴

Figure 2. RHIS Rapid Assessment Workshop output—Myanmar, December 2016



Although Figure 2 shows many gaps in the HIS, the following outline list shows the priorities identified in the Myanmar HIS Strategic Plan:

Management and Governance

- (a) Policies & Planning
 - (i) Legal and policy framework specific for HIS not available.
 - (ii) Financial and human resources planning mechanism for HIS not in place at all levels of health care system.

⁴http://www.aidsdatahub.org/sites/default/files/publication/Myanmar_Strategic_Action_Plan_for_Strengthening_Health_Information_2017-2021.pdf

- (iii) The updated National Statistical Law submitted to the Parliament does not include legislation and regulation for health information.
 - (iv) HIS policies and guidelines not updated. A single comprehensive policy and guidelines not available.
 - (v) Accountability of all stakeholders in the HIS strategies not clearly expressed.
- (b) Management
- (i) Availability of SOPs at all levels, indicating data collection and processing, data analysis, dissemination, use and quality assurance.
 - (ii) Political commitment present but capacities and distribution of roles and responsibilities not sufficient.
 - (iii) HIS unit at the national level to be organizationally strengthened.
 - (iv) Feedback and supervisory mechanisms are not systematic and standardized.
- (c) Human Resources
- (i) National HR Plan developed but not completed (costing) and no implementation, should include carrier capacity development plan. No training database available.
 - (ii) HIS staffing including for IT support and budget to be assessed.
 - (iii) HIS training team not available; should be formed with dedicated staff and a systematic training program.
 - (iv) Training and capacity development plan for Basic Health Staff (BHS) not available

Data & Decision Support Needs

- (d) Data Needs
- (i) Minimum essential data-set to be selected.
 - (ii) Cause of death certification and mortality reporting from health facilities not regularly conducted and reviewed.
 - (iii) Quality of cause of death identification and mortality coding at the health facilities not satisfactory.
- (e) Standards and System Design
- (i) Interoperability of health facility-based information system with HIS limited.
 - (ii) Networking and coordination/data sharing between different vertical programs limited.
 - (iii) End users and the community should more participate in designing the information systems.
 - (iv) Data from private sector, NGOs and CSO not integrated to HIS.
 - (v) Research data not formally included in information systems.

Data Collection & Processing

- (f) Collection and Management of Individual Client Data

- (i) No standardized data collection system for individual patients, confidentiality of individual data not assured.
- (g) Data Quality Assurance
 - (i) Data quality assurance not regularly conducted.
- (h) ICT
 - (i) No policy support for ICT.
 - (ii) No framework and resources for ICT including maintenance.
 - (iii) Use of m-Health and eHealth at all levels for data collection should be maximized, particularly for data collection in remote and isolated areas.

Data Analysis, Dissemination and Use

- (i) Data Dissemination
 - (i) Policy briefs capacity limited.
 - (ii) No active collaboration with media.
 - (iii) Make available the core health information to diverse target audiences.
- (j) Data Use
 - (i) Culture of using data for decisionmaking not sufficient.

How the Gaps Are Addressed in Planning

The Myanmar HIS Strategic Plan addresses these gaps in the RHIS, with the following strategic objectives. The subdomains of the RHIS rapid assessment addressed by each strategic objective are indicated in italics.

Strategic Area 1: Public Health Information

- 1.2. HIS Development and HIS Working Committees operationalized (*Management*).
- 1.3. Essential indicators in line with Sustainable Development Goals (SDGs) related to health identified (*Data Needs*).
- 1.4. Guidelines and standard operating procedure for data management (Data Dictionary) available. (*Management*).
- 1.5. Data collection from private sector and NGOs in place (*Policies*).
- 1.6. Electronic reporting of aggregated data rolled out (*Standards and System Design / ICT*).
- 1.7. Enhanced skill and knowledge on health information (*Human Resources—workforce training*).

Strategic Area 2: Hospital Information

- 2.1. Health information policy approved (*Policy*).
- 2.2. Quality of health facilities' medical records units at all levels enhanced including expanded use of ICD-10 for disease classification in hospitals (*Standards and System Design*).

2.3. Hospital electronic reporting system (*Standards and System Design, ICT*).

Strategic Area 3: Private Sector Information

3.1. Health information from the private health facilities included in the national HIS and monitored (*Policy, Standards and System Design*).

3.3. Interoperability of electronic hospital information system between the private and government sectors (*Policy, Standards and System Design, ICT*).

Strategic Area 4: Vertical Reporting Systems

4.1. Alignment of the vertical reporting systems with the national HIS (*Policy, Standards and System Design*).

4.3. Integration of aggregated data of the health programs in HMIS (*Standards and System Design, ICT*).

Strategic Area 5: Human Resource Management Information

5.2. Human resource for health national database including public and private sector (*Human Resources—Workforce Planning*).

Strategic Area 8: Epidemiological Surveillance Information

8.1. Human resource capacity in epidemiological surveillance information in each level of health services (*Data Needs—Surveillance*).

8.2. Immediate recording and reporting of mandatory events in place (*Data Needs—Surveillance*).

Strategic Area 9: Civil Registration and Vital Statistics

9.1. Coverage of reporting birth and death information from health facilities and the community increased (*Data Needs—Facility-based data on mortality and causes of death*).

9.2. Quality of identifying cause of death (COD) in health facilities. (*Data Needs—Facility-based data on mortality and causes of death*).

9.3. Electronic recording, ICD-10 coding and reporting causes of deaths (*Data Needs—Facility-based data on mortality and causes of death*).

Strategic Area 11: Utilization of Health Information

11.1. Core health information disseminated to various users by various methods (*Data Dissemination*).

11.3. Culture of using the information at all levels enhanced (*Data Demand and Use—Culture of information*).

Strategic Area 12: Advanced Information Technology Development

12.1. Data Center in MoHS established (*Standards and System Design, ICT, Data Use*).

12.2. Interoperable subsystems in HIS (*Standards and System Design, ICT*).

12.3. Internet connectivity to all health facilities (*ICT*).

Feedback from Workshop Participants on the RHIS Rapid Assessment Tool

While some participants expressed their concerns with the assessment tool (e.g., some standards seemed to be complicated and required more time to understand, too many standards, too many assumptions were needed to score, some standards are vague and open to different interpretation), general consensus was that the assessment tool is comprehensive and helped the participants look at all important perspectives of the national HIS. And—the main purpose—to bring together all major stakeholders and get consensus on gaps and further joint action—was fulfilled.

Northern Syria

Gaps Found in the RHIS Rapid Assessment

The Northern Syria RHIS Rapid Assessment workshop was held in December 2016. While a workshop report, the “Syria Routine Health Information Workshop–Assessment and Planning Towards a Strong Routine HIS,” was available for review, the RHIS Rapid Assessment Tool templates were not. A HIS Strategic Plan also was not available, but elements of such a plan (e.g., Operational Plan) appear in the workshop report.

Figure 3 shows the output from the analysis and dashboards module of the RHIS Rapid Assessment Tool. Overall, 60 percent of attributes were scored “not present, needs to be developed” or “Needs a lot of strengthening.” Another 30 percent were scored “Needs some strengthening.” The results show that “the RHIS still presents substantial gaps and weaknesses.”

Figure 3. RHIS Rapid Assessment Workshop output—Northern Syria, December 2016



The following outline, taken from the workshop report, shows the gaps, by domain.

Management and Governance

- No HIS strategic plan is in place. A costed HIS strategic plan will be useful to guide the efforts to strengthen the routine HIS: a short-term HIS plan can help to reduce fragmentation and guide investments of partners in RHIS.
- Although there are coordination mechanisms in place (the Health Cluster—Turkey Hub), they are not specific to HIS. More robust coordination mechanisms would be helpful to reduce fragmentation of information systems. The recently created coordination committee should be operationalized to help align NGOs, health directorates (HDs) and other implementing agencies around agreed data standards and data sharing arrangements.
- There is a Master Facility List (MFL) in place which is updated every six months. It however does not include private sector. Regular updates should be ensured.

Data & Decision Support Needs

- Data collection tools and forms are not harmonized across facilities and health directorates. Standards data collection tools to capture health information from community and facility level should be reviewed and developed.
- Core indicators, intended to create a limited but consistent set of data collected across facilities to measure the health status of the population, have not been broadly adopted across all facilities. A key priority will be to define and agree on a list of core indicators and targets, ensuring active engagement with end users.
- Death data are either not reported consistently, not captured using standard coding like ICD, or not reported using ICD codes. The death certificate form to allow reporting disaggregated mortality data should be reviewed, and medical staff should be trained on using death certificates and verbal autopsy methods.
- Early Warning Alert and Response Network (EWARN) capacities (laboratories, private sector engagement, etc.), which are working well, still could be further strengthened and expanded.

Data Collection & Processing

- Patient-centric data collection and management systems for client data are not present currently. A harmonized system to capture individual data (EMR) leveraging DHIS2 could be established.
- Health Directorates' capacities for data quality assurance should be strengthened, including facility-level trainings and on-the-job trainings. A multi-stakeholder plan and methodology to assess and improve data quality (e.g. DQR) would be useful.
- Better coordination and planning is needed to improve ICT. Overall, training in ICT is needed at all levels of the health care system. Key recommendations include to conduct IT feasibility study and health facility needs assessment and to conduct an evaluation of the use of digital health solutions to advance health sectors aims.

Data Analysis, Dissemination, & Use

- There is a donor driven data culture (rather than natural data use at HD or District levels). The regular cycle of reports (what and when, by level) should be defined. Timeliness of reports and data quality need to be substantially improved.
- There are varying capacities to disseminate health information at different levels (Health Cluster, health directorates, NGOs, etc.). Setup a strategy-setting workshop for HDs with the Coordination Committee to define the required information/data dissemination strategy/products is needed, ensuring broad engagement of all health actors.
- Training staff at the different levels is needed in data analysis, interpretation and use, using the available tools, including program and facility managers. A combination of local demand and use of data (e.g., by health facility managers) and a top-down approach (e.g., NGOs supporting facilities) could result in improvements in the allocation of resources at facility level.

How the Gaps Are Addressed in Planning

Workshop participants identified priorities for HIS strengthening in the workshop and developed objectives and key activities to realize the objectives. The objectives respond to the weaknesses found on the RHIS rapid assessment. Below are objectives, by domain, identified in the RHIS operational plan that resulted from the workshop. The subdomains of the RHIS rapid assessment addressed by each strategic objective are indicated in italics.

1. Management and Governance

- O1.1 Strengthen the Local Health Authorities (LHA) capacities to act as the exclusive and central reference of the national health information system, including core health indicators and standardized forms (*Management, Data Needs, Collection and Management of Individual Client Data, Collection, Management and Reporting of Aggregated Facility Data*).
- O1.2 Develop and implement guidance and protocols in privacy and confidentiality, data information sharing, use and decisionmaking and data ownership (*Policies & Planning, Data Dissemination, Data Use*).
- O1.3 Develop and manage a central competent human resources information system to implement the national relevant health functions (*Human Resources—Workforce Planning, Training & Capacity Building*).

2. Data and Decision Support Needs

- O2.1 Develop a set of unified, prioritized core indicators that roll up from the community to national levels with clear definitions to consistently describe the health status of the population (*Data Needs—Core Indicators*).
- O2.2 Design a mortality registry system that describes mandatory data (e.g. death certificates), processes and training to inform planning and decisions (*Data Needs—Facility-based Data on Mortality and Causes of Death*).
- O2.3 Adapt an international coding classification to support interoperability within the national health system (*Standards and System Design—Standards & Data Architecture*).

- O.2.4 Effectively engage all levels of health system stakeholders in HIS design and implementation decisions (*Standards and System Design—System Design*).

3. Data Collection & Processing

- O.3.1 Identify a unified data flow mechanism to ensure better reporting mechanisms in an accurate and timely manner (*Collection, Management and Reporting of Aggregated Facility Data—Data Flow, Data Quality Assurance*).
- O.3.2 Improve quality of data by developing a data quality assurance plan and standards (*Data Quality Assurance—Planning, Standards*).
- O.3.3 Develop ICT framework for the use of equipment and IT technology (*ICT—ICT Framework*).

4. Data Analysis, Dissemination, & Use

- O.4.1 Empower lower levels of the health system to use and interpret data (*Data Analysis, Data Use*).
- O.4.2 Define information productions and ensure they are fully handled by the Health Directorate/Governing Committee (*Information Dissemination—Information Products*).
- O.4.3 Increase the number of facilities that have access to data analysis tools and have been trained in their use (*Data Analysis—Tools, Training*).

Feedback from the Implementation in Myanmar

Participants in the workshop provided the following comments and feedback:

- The application of RAT went well and the objectives of the assessment were achieved.
- Using generally accepted standards in the assessment tools is an excellent opportunity for the participants to go through them and see how the "perfect" HIS should work.
- Color coding helps to easily interpret and highlight areas for improvement.
- The grouping of HIS standards is unfamiliar; the HMN model (with six HIS components) used to be more understandable and clearer than the "four domains" grouping in this RAT.
- Some of the standards are formulated in a too complicated way and cover more-than-one issue; could be formulated simpler.
- Two days' workshop (just six net hours of group discussions) seemed to be a bit short for getting group consensus on 160 standards. Some of them would require availability of the documents, assessment of "knowledge of the subnational staff," etc. This issue could be addressed in several ways:
 - Distribute the data entry form to the workshop participants a few days in advance, with clear guidelines on what to do.
 - Select the suitable chairpersons of the groups in advance and have a few hours with them for a pre-meeting and briefing to clarify the guidelines.
 - Add one more day of the workshop, and go through all the standards in a plenary.
- Select major standards in each component and domain or subdomain or section, enabling more focused discussion and getting consensus on key comments for each subdomain or section.

- Selection of the participants is an extremely crucial issue. Sometimes, it was felt that many of the participants were not technically suitable and prepared to actively participate and offer their expected inputs.
- All statements include many parts to consider making the participants confuse in giving scores. Sometimes difficult to get group consensus.
- Too many questions and attributes. Lengthy assessment. Many questions are too long.
- Need of clear definitions (e.g., what means all levels). Some questions are vague and open to different interpretation (e.g., supervision session? Leadership session?).
- Subjective answers based on many assumptions.
- Sometimes due to a word, the score could change from 4 to 1.
- Some questions are duplicated (3.1.8).
- Ensure all HIS stakeholders are invited to the workshop (e.g., medical record technicians).

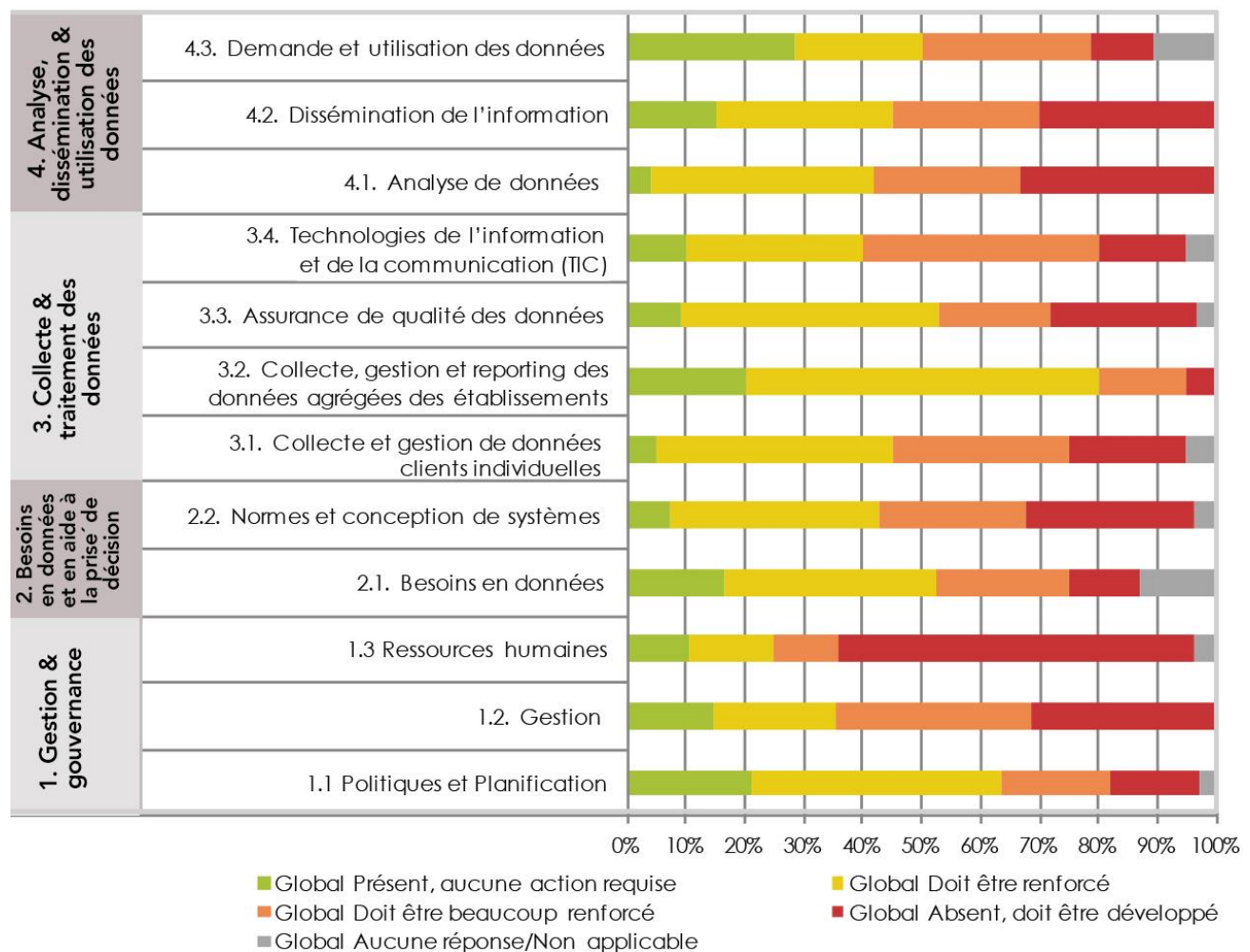
Madagascar

Gaps Found in the RHIS Rapid Assessment

The revised RHIS Rapid Assessment Tool was implemented in Madagascar in July 2017. In the one-day workshop, RHIS stakeholders were brought together and grouped by level of the health system. They discussed the standards and derived consensus scoring on adherence to the standards.

Figure 4 shows the workshop output from the Madagascar pilot test. From these results the priority gaps are subdomains with the least green and yellow in the 100 percent bar chart. The list following the figure gives the priority subdomains from the RHIS Rapid Assessment Tool, which correspond to weaknesses identified in the workshop output (indicated in *italics*).

Figure 4. RHIS Rapid Assessment Workshop output—Madagascar, July 2017



1. Management & Governance

- a. *Management* (which includes Standard Operating Procedures (SOP), Leadership, Feedback, Supervision, Assessments and Use of Assessments, and the Master Facility List).

- b. *Human Resources* (including Workforce Planning, and Training & Capacity Building).
- 2. Data and Decision Support Needs
 - a. *Standards & Data Architecture.*
 - b. *System Design.*
- 3. Data Collection & Processing
 - a. *Collection and Management of Individual Client Data.*
 - b. *Data Quality Assurance.*
 - c. *ICT.*
- 4. Data Analysis, Dissemination & Use
 - a. *Data analysis.*
 - b. *Information Dissemination.*

After the workshop the resident advisor for MEASURE Evaluation in Madagascar had this to say about the results of the workshop:

We have used the RAT results to update the RHIS Strategic plan for 2018–2022 in August–September 2017. Basically the strengths and weakness identified were used to orient the strategic planning and prioritized keys activities. Please find attached the validated version of the RHIS Strategic Plan 2018–2022 for more details.⁵

The Madagascar Health Information System Strengthening Strategic Plan 2018–2022⁶ (page 19) says,

The RHIS rapid assessment with the RHIS RAT tool helped to identify information system deficiencies against predefined international standards and to link them with the results of other assessments to develop operational plans for strengthening of the Health Information System.

RHIS weaknesses cited in the HIS Strategic Plan affect the following domains:

Management and Governance

Despite the implementation of some governance and information system management activities, the results of the RHIS evaluation show that much more needs to be done to strengthen policies and planning, but also human resources.

Data and Decision Support Needs

This evaluation also found a great need for data and support for decision-making. It demonstrates the need to improve the capacity to produce comprehensive data and the need for quality that meets international standards and norms for the management of a health information system.

⁵ Personal communication with Fanor Joseph, MEASURE Evaluation resident advisor for Madagascar.

⁶ https://www.measureevaluation.org/resources/publications/sr-17-146/at_download/document

Collection and Processing of Data

Despite the efforts to put in place data collection and processing tools, the results of the evaluation also show the need for plans to strengthen the collection and management of individual and aggregated data, the quality of data and IT management.

Analysis, Dissemination and Use of Health Information

Given the absence of data analysis, it is essential to strengthen the capacity of data managers to improve the dissemination of health outcomes and to enable the proper use of health information by policymakers and decision makers.

How the Gaps Are Addressed in Planning

The Action Plan for the Strengthening of the Health Information System (Madagascar RHIS Strategic Plan 2018–2022) contains the following activities to address the weaknesses in the RHIS identified with the RHIS rapid assessment (in italics):

- Develop or update a guidelines document on standards and procedures and RHIS data management (*Collection and Management of Individual Client Data*).
- Develop or revise guides to RHIS data filling, management and utilization procedures, as well as training curricula (*Collection and Management of Individual Client Data*).
- Update and operationalize the RHIS data management tools for the Hospital Information System (*Collection and Management of Individual Client Data*).
- Develop or revise the structure and organization of supervision (tools, procedures) (*Management*).
- Develop and periodically review institutional tools at each level with emphasis on data monitoring and analysis (*Data Analysis*).
- Develop for various users at all levels training curricula on the use and analysis of data for decision-making and action (*Human Resources—Training & Capacity Building, Data Analysis, Data Use*).
- Strengthen feedback and production mechanisms for periodic health bulletins (*Management, Data Analysis, Dissemination*).
- Plan and carry out reinforcement of the IT infrastructure, and computer and communication equipment from the needs identified by the landscape analysis (*ICT*).
- Establish a broadband Internet connection at all levels to ensure information sharing (*ICT*).
- Implement the health system data warehouse system via DHIS2 (*Data Analysis, Data Dissemination, ICT*).
- Formalize the creation of the RHIS coordination committee: Terms of reference, Institutionalization, roadmap (*Management*).
- Validate the terms of reference and work plans of the technical working groups (TWGs) of the RHIS Subcommittee (*Management*).

- Train 114 District Managers, 22 Regional Managers and 12 Departmental Supervisors to use RHIS data collection tools and weekly DHIS2 data processing (*Human Resources—Training & Capacity Building*).
- Develop and implement a data quality control system and a data quality problem resolution strategy at each level (*Data Quality Assurance*).⁷

Performance of Routine Information System Management (PRISM) Assessment

In Madagascar, a PRISM assessment was also conducted and used to inform the strategic plan.⁸ A PRISM assessment—a much more in-depth assessment of the RHIS—includes health facility and district data verification. This affords the opportunity to compare the results of the rapid assessment with that of the PRISM. The PRISM assessment found the following results, by domain.

Data Collection Tools/Capacity

Most health facilities do not have the guidelines, equipment, training and supervision materials necessary for the proper implementation of operational activities for data quality control. Most of these health data quality issues (accuracy, completeness, timeliness, validity, etc.) highlight the consequences of health system decision makers using incomplete, erroneous, or inconsistent data.

Data Quality

Efforts to assess and improve data quality are often poorly planned and uncoordinated, leading to data inconsistency and duplication, and poor management of already limited resources for all health programs. Inconsistencies in the management and processing of data from different sources and data collection tools are factors that could also influence the poor quality of the data. These inconsistencies in the quality of the data can be explained by a lack of individual capacities, institutional technical and organizational management of the Health Information System.”

ICT

Despite the implementation of tools, powerful database software, transactional systems and standards, the Ministry of Health has not really been able to seize the opportunity offered by advances in information and communication technology (ICT). In addition, the platform for storing and exchanging data does not yet exist in the health system in Madagascar.

The PRISM assessment found similar shortcomings in the RHIS as the rapid assessment: for example, management, human resources, training, system design, data collection and management, data quality, the use of ICT, and data analysis and use. Thus, the findings of the RHIS rapid assessment were corroborated by the findings of the PRISM assessment.

⁷ Translations from the French in the Madagascar HIS Strategic Plan were conducted using Google Translate.

⁸ https://www.measureevaluation.org/resources/publications/sr-16-129-fr/at_download/document

Republic of the Gambia

RHIS stakeholders in the Republic of the Gambia reviewed the RHIS Rapid Assessment Tool. They did not complete a workshop report or assessment templates but did provide the following feedback:

- *The tool was implemented in the context of a broader EWARN surveillance assessment. We had just one day to implement the RHIS Rapid Assessment tool, so we selected a subset of the standards: 73 out of the 160 standards and attributes. . . Basically, we looked to the headings and standard covering the subsection plus some additional points that could be relevant. This worked well because it reduced the time and the length of the discussions, but still allowed for some time for standards that participants considered complicated or difficult to understand.*
- *The tool worked well to articulate the discussions. We divided the whole group (circa 30 people) into four, one by each section. The small groups, with 6–8 people, had fruitful discussions. Still, the one day time was too short.*
- *We added two columns: (1) “Is this a priority?” and (2) “Identify the priority action.” We believe this is key to link the assessment with the planning process. This approach worked very well, and even helped to score the standard.*
- *Some issues are missing, such as the mapping of information subsystems; although these are difficult to capture as standards, they are important for the assessment report and planning process.*
- *It is key to ensure the right people (key informants) are invited to the workshop (e.g., in the Gambia workshop, participants did not have experience in CoD).*
- *In general, my conclusion was that there is still room to reduce the number of attributes, simplify some of them, and better link the assessment with the planning process.*

DISCUSSION

For the RHIS Rapid Assessment Tool to be considered effective, its implementation should result in strategic planning to address gaps found in the assessment. In three of four countries that piloted the RHIS rapid assessment, there is good evidence that the assessments informed strategic planning.

In Malawi, the rapid assessment was touted by RHIS managers in a bulletin that called attention to the assessment results and presented a graphic of the results from the tool's Analysis and Dashboards module. Subsequently, the strategic priorities for HIS were outlined in the minutes of a meeting with the Health Data Collaborative—priorities that addressed these same weaknesses. Finally, the Health Sector Strategic Plan (Phase II) listed these same priorities and included interventions to address the shortcomings.

In Myanmar, the implementation of the RHIS Rapid Assessment Tool resulted in a strategic plan specific to the HIS where the primary source of information used to inform planning seems to have been the RHIS rapid assessment. All of the graphics from the Analysis and Dashboards module of the Rapid Assessment Tool are reprinted in Annex 1 of the HIS Strategic plan.⁴ Moreover, the RHIS weaknesses identified on the assessment are comprehensively addressed by the plan, with interventions linked to priority gaps in the RHIS.

In northern Syria, again, the RHIS rapid assessment was the primary source of information for the elaboration of an operational plan to strengthen the RHIS. A workshop report summarized findings from the assessment and linked priority gaps with interventions to strengthen the RHIS. Although it is unclear what progress has been made to implement the operational plan, given the political situation in Syria, it is clear that the rapid assessment findings were used in planning for the RHIS.

In Madagascar, the assessment results were also used to develop an HIS-specific strategic plan. Shortcomings in the RHIS were linked to interventions aimed at ameliorating poor RHIS performance. Moreover, a PRISM assessment found similar problems in the RHIS, corroborating the findings of the rapid assessment.

Feedback from the pilot tests of the rapid assessment was used to inform revisions to the tool. Many respondents considered the tool long and repetitive. Others felt that the standards as written were wordy or unclear. Others felt they were too complex, with too many elements to address with one response. At each step, the rapid assessment was tweaked to respond to criticism.

In December 2016, after implementation in three countries, the tool was overhauled, reducing the number of standards from 160 to 97. Some standards were simply removed as unnecessary or redundant, while others were collapsed. To avoid compound standards that could be interpreted several ways, the details were moved to the response coding (that is, the score will drop if elements of the standards are not present).

Comprehensive guidance on interpretation and scoring of the standards was embedded in the tool (e.g., guidance automatically appears in a pop-up window when the user clicks on the cell where the standard is written). In response to a suggestion that workshop attendees were not certain what actions to recommend for given shortcomings in the RHIS, a list of priority actions for each standard was added to the tool.

Finally, the dashboards were made more user-friendly and less cumbersome, by making them menu-driven. In the final version, a user can select the domain or level of the health system for the results desired, all on the same page rather than by scrolling through multiple pages of the tool to find the required results.

CONCLUSION

All four of the countries conducting a rapid assessment used the results to inform strategic plans for RHIS, which is the intended purpose of the tool. The tool was extensively modified and upgraded in response to user feedback. The corroboration of the rapid assessment results by the results of the PRISM assessment in Madagascar indicates that rapid assessment is effective in identifying gaps in the RHIS. Thus, the RHIS Rapid Assessment Tool can be considered a valid tool for revealing shortcomings in RHIS and informing the strategic planning process.



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