Rapid assessment tool for critical data gathering

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Department of Evidence and Intelligence for Action in Health (EIH)

Pan American Health Organization

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REGIONAL OFFICE FOR THE Americas

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Rapid Assessment Tool for Critical Data Gathering
PAHO/EIH/IS/COVID-19/21-0008
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Contributors to the development of this tool

This tool was created through the technical coordination of the Department of Evidence and Intelligence for Action in Health, Office of the Assistant Director.

The following institutions and experts in telemedicine and the use of IT in public health from the Region of the Americas and Spain have contributed to developing this tool:

- o Social Protection and Health Division, Inter-American Development Bank.
- o Department of IT in Health, Italian Hospital of Buenos Aires (PAHO/WHO Collaborating Centre for Information Systems and Digital Health)
- o Open University of Catalonia (UOC) (PAHO/WHO Collaborating Centre for eHealth)
- o Centre for Health Informatics, University of Illinois (PAHO/WHO Collaborating Centre on Information Systems for Health)
- o Salud.uy, Agency for eGovernment and the Information Society (AGESIC) of Uruguay
- o The Central American Health Informatics Network, RECAINSA
- o PAHO Information Systems for Health (IS4H) network of experts

Introduction

This tool is designed for rapid assessment of health and health-related institutions and evaluates their capacity to gather critical, high-quality data in the pandemic response. The tool assesses institutional commitment to the timeliness and quality of data used for decision-making at all levels. It can be use at health service delivery points which rely on both paper records and some level of data entry but lack updated or automated data-processing practices. The tool facilitates self-assessment to redefine pandemic priorities. The tool includes a series of questions organized into the five categories indicated below.

It identifies the *capacity gap* within international, national and subnational[1] data systems and assesses the ability to provide reliable and constructive data. Based on the maturity model concept, institutions are classified into four different levels, based on data gathering timeliness and data quality, ranging from **1 (Unproductive)** to **4 (Exemplary).**

Table 1. Maturity Level Reference[2]

1 (Unproductive)	2 (Unreliable)	3 (Reliable)	4 (Exemplary)	Requests Technical Support
Consistently delayed reporting and poor data quality	Typically, either delayed reporting and good quality data, or on timely but poor data quality	Generally, timely reporting but of variable data quality	Always timely and good data quality	Requires expert technical support to improve gathering processes and delivery of health services.

This tool supports pandemic response operations. Its design is based on models implemented by different health institutions with different levels of complexity in several countries. It was developed collaboratively with institutions and experts from the Region of the Americas specialized in data gathering, analytics and information technology in public health. (See Acknowledgments).

Table 2. Digital Transformation Domains

Data Capture & Registration	Data collection tools and mechanisms are used to digitize information for computer input
Data Processing	The process of systematically reviewing, cleaning, and standardizing data, especially digitally, to retrieve, transform, or classify information
Monitoring & Evaluation (M&E)	The M&E framework consists of indicators, tools, and processes that support a plan for establishing targets and objectives, with a system for measuring baselines and progress towards targets. The framework includes a process for periodic evaluation of the results and program performance with bi-directional information

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[1] Sub-national Level: Department, province, or district or local government level within countries, and are accountable to national governments to varying degrees.
[2] For a more in-depth situation analysis, please use the full IS4H Self-Assessment Maturity Model on the PAHO site.

	feedback procedures to allow for program adjustments when results are outside of what is expected to meet the targets.
Communication & Dissemination	The process through which the data and information reported within the M&E framework are interpreted and shared with end users and the public. A communication strategy helps address to whom, why, what, and how to transmit the key messages about data and other information. It should be timely, with the message and medium tailored to the audience.
Data use for Quality & Impact	The data and information will be used in various ways: to make programmatic adjustments, develop policy, analyze impact, etc. This information should be made accessible in a transparent manner. Access to data and information should be timely. When appropriate, if this data gathered can be used for contact tracing and tracking of positive cases.

Each category comprises a series of short questions, with its own answers according to the maturity level. The scores for each category are the average (mean) of the individual responses; and the overall score will be calculated as an average of all categories.

 "Critical data" are those clinical and operational variables used for making day-to-day decisions about the pandemic response both at local and central levels. More details can be found on this factsheet.

Description - Tool for Rapidly Assessing the Timeliness and Quality of Critical Data Gathered by Institutions during COVID-19

Digital Transformation Questions		Level of Maturity				Requests Technical Support
		1	**2**	**3**	**4**	
I. Data Capture & Registration						Overall:
1	Does the institution[1] have a national standardized[2] form for data collection? (e.g. <u>Template or Form</u>)	No	Yes (Institutional)	Yes (National)	Yes (International)	
2	Does the institution use the latest health data standard? (e.g., nomenclature or classification standards like HL7[3]/ICD[4])	No	Partial Use	Yes - Most of the time	Yes – Constant update of international standard	
3	Does the institutional team have knowledge of systematized nomenclature techniques? (e.g. classification standards like HL7/ICD)	No	Some (Self-taught)	Yes (Competent)	Yes (Fully proficient)	
4	Is there a national normative on critical data capture?	No/Does not know	Yes – Not used	Yes – Partially Used	Yes – Always (Complete and disaggregated)	
5	In what format does the institution register its data?	Physical (Paper)	Digital (Not Processable[5])	Excel or Similar Processable	Integrated though Application Programming Interfaces (APIs)	
6	What is the institutional infrastructure used for data registration?	Physical (Paper)	Offline (ex-post)	Online (Not interoperable)	Online (Interoperable)	
II Data Processing						Overall:
7	Does the institution process its data in-house according to specified Standard Operating Procedures? (e.g. data review, reconciliation, indicator calculation, etc.)	No / Does not know	No – Done at a National Level	No – Done at a Sub-national Levels[6] (department/province, district/local, etc.)	Yes	
8	Does the institution have an information system? What is the structure of the database?	Does not have (Paper)	Ad-Hoc[7] / Institutional	Adapted / Simplified from other sources	Yes, complying to International Standards	
9	Is there a team/focal point specifically assigned for data processing?	No	Yes – Ad Hoc	Yes – Part Time	Yes – Full Time	
10	Is there an institutional flowchart/algorithm for data processing?	No	In process of construction	Yes – but no roles and responsibilities	Full flow chart with roles and responsibilities	
11	Is the information-flow clear to everyone involved?	Does not know/ Stays at point of collection or used for some reports.	Upward – Sent to central level but no feedback	Upward - Routinely sent to central level with some feedback received.	Horizontal / Cross-sectional. Integration of all source and /levels with constant feedback	
III. Monitoring and Evaluation						Overall:
12	Does the institution use a data traceability protocol[8]?	No / Does not know	Yes (Institutional)	Yes – with National compliance	Yes – International compliance	
13	Is there ongoing monitoring and evaluating and/or infrastructure to implement data capturing solutions?	No / Does not know	In process of construction	Yes – but no key indicators or roles	Yes – with clear indicators, methods and roles	
14	Is there general awareness within the institution of why data is being gathered and how it can used in other initiatives?	No / Does not know	Some awareness – Protocol for wider data use in process of construction.	Full awareness – Protocol for data usage is clear but no key indicators or roles	Full awareness – Protocol for data usage with clear indicators, methods and roles.	
IV. Communication & Dissemination						Overall:

Note: For a more in-depth situation analysis, please use the full IS4H Self-Assessment Maturity Model tool.

15	Are there open communication channels[9] with higher-level decision makers?	No	Sometimes – Ad hoc	Yes – Written and Formal	Yes – Direct, Digital & Real-time	
16	Are there direct/unofficial communication channels between people involved in the pandemic response?	No / Does not know	Yes – Institutional & Spontaneous	Yes – at Sub-national (department/province, district/local, etc.) or National level.	Yes – at a National & International Level	
17	What is the frequency of communication of information and through what channels?	No plan/Does not know	Ad hoc / Analogical (Printed, Radio, TV)	Periodical / Analogical and Digital.	Real Time / Analogical and Digital.	
18	Are there official communication channels between people involved in the pandemic response?	No / Does not know	Yes – Rigid to the immediate level above.	Yes – Across levels but non-digital (paper/telephone)	Yes – Across levels and digitally (chat, email and internal platforms)	
19	Does the institution communicate data/findings directly to the public?	No	Sometimes (with permission)	Yes – but Not Systematically[10]	Yes – Systematically	

V. Data use for Quality & Impact					Overall:
20	Is there fact checking or an internal quality audit of what it is communicated or released to decision-makers or to the public?	No / Does not know	Sometimes – Ad hoc	Yes – Not Systematically	Yes – Systematically	
21	Is institutional data used as input for other programs or initiatives?	No / Does not know	Sometimes – Ad hoc	Yes – Not Systematically	Yes – Systematically	
22	Does the institution have key metrics and performance indicators?	No / Does not know	In process of construction	Yes – but no key indicators or roles	Yes – with clear indicators, methods and roles	
23	Has the institution identified the intended use of the data gathered?	No / Does not know	In process of construction	Yes – but no key indicators or roles	Yes – with clear indicators, methods and roles	

V.i. When appropriate					
24	Can the data gathered by the institution be used for contact tracing?	No / Does not know	Part of it – Very slow process requiring manual data entry	Most of it - Processable data but not real-time.	Yes – All of it (real-time, interoperable data gathering)	
25	How is the institution tracking the confirmed positive cases?	Not tracking	Manual / Telephone	Digital (Not Processable)	Digital Processable	

| | | | | | TOTAL: |

Glossary:

1. Institution: Health Service Delivery Point where health services are rendered, whether it be the primary, secondary, or tertiary level. Usually where "raw" clinical and operational data are first registered.
2. Standardized: Known and consistent frameworks for organizing data that enable the operational processes underlying exchange and sharing of information.
3. HL7: Health Level Seven (HL7) is a set of international standards used to provide guidance with transferring and sharing data between various healthcare providers.
4. ICD: International Statistical Classification of Diseases and Related Health Problems (ICD).
5. Processable Data: Data that have been organized and structured systematically, according to standardized methodologies and can be successfully processed by a particular technology.
6. Sub-national Level: Department, province, or district or local government level within countries, and are accountable to national governments to varying degrees.
7. Ad hoc: Product or process created or done for a particular purpose as needed. Spontaneous and not done with a larger goal or plan in mind.
8. Data Traceability Protocol: The ability and opportunity to review the flow of how data and information are processed and used.
9. Communication Channels:
   a. Direct/Unofficial: Fast, almost real-time ways of communicating (phone or chat).
   b. Indirect/Official: Governed communication system, usually institutional and slower.
10. Systematic: Methodological, acting according to a fixed plan or system.

Note: For a more in-depth situation analysis, please use the full IS4H Self-Assessment Maturity Model tool.

Guide to Analyzing the Results Recommendations

Below is a guide explaining the meaning of each score and the areas identified for intervention based on the level of maturity scored.

Each category comprises a series of short questions, with answers indicating the maturity level. The scores for each category are an average of the individual responses; and the overall score will be calculated as a simple average of all categories. This will be a number between 1 and 4 meaning the levels are: < 1 and < 2 = Level 1, < 2 and < 3 = Level 2, < 3 and < 4 = Level 3, 4 = Level 4. Recommendations are grouped in three aspects that were identified as a priority: Infrastructure, Human Resources & Capacity Building and Organizational Culture Transformation.

Levels 1 and 2: **Prioritize data management activities at the point of service delivery.**

Infrastructure:
- Ensure reliable internet access and hardware.
- Define which healthcare services data are priority and run a mini test.

Human Resources and Capacity Building:
- Advocacy: Raise awareness on why a correct data gathering is important. Focus on ownership and the potential to improve programs and processes.
- Foster training on technical skills and Standard Operating Procedures development.

Organizational Culture Transformation
- Plan: Where possible, formulate an action plan, supported by evidence-based results and information from existing system that is reviewed at decision-making levels.
- Roles: Define the organizational structure and how various internal and external groups coordinate, roles and responsibilities, and a timeline for key activities. The plan may also reflect new or desired components yet to be operationalized.
- Budget: Plan a corresponding budget and financing options.

Level 3:

Infrastructure
- Ensure access: make sure the tools are available at all those data entry points.

Human Resources and Capacity-building:
- Strengthen human resources, financial resources and technical competences.
- Identify information technology staff specialized in data surveillance or more complex information technologies.
- Define training systems and targets.
- Set up an interdisciplinary task force. Share organigram and TOR for roles.
- Evaluate and Adapt: Promote constant training to develop technical competencies.
- Advocacy and Ownership: Publicize institutional benefits of improved data gathering to work, workload, health programs and service quality.

Organizational Culture Transformation
- Carry out an assessment on the current processes.
- Brainstorm new approaches that could be implemented in the short term with existing resources.
- Adopt methodologies (like quick analysis on lessons learned) on what has been successful/unsuccessful for each point.

Level 4: **Address the dynamic nature of the work.**
- Focus on continuous monitoring and evaluation.
- Verify continuously for completeness; update and adapt processes accordingly.
- Promote 360º or bi-directional information reporting, evaluation, and refinement.
- Improve regulatory frameworks. Advocate for national and international development of guidelines on data management and governance.
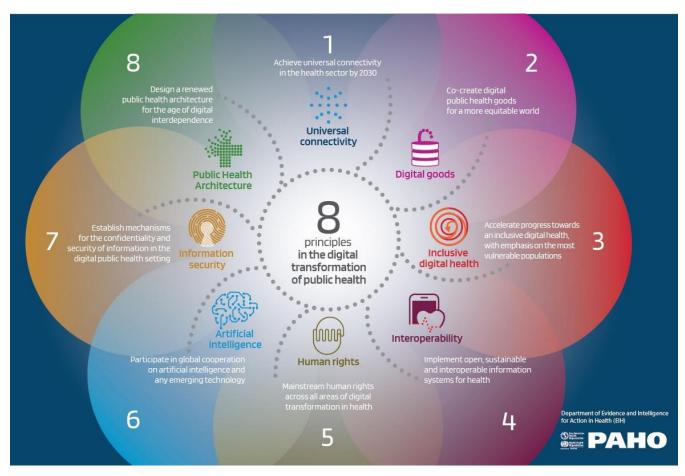- Promote adherence to common frameworks and foster interoperability.

For all four levels, it is always recommended to work with subject-matter, information technology and data-management experts to design a road map based on an analysis of the end results.

Additional information

- PAHO - Strengthening Health Information Systems

How this relates to the 8 Principles for Digital Transformation of Public Health?

Principle 3: Inclusive Digital Health. Inclusive digital health should be a "must": and we need to accelerate progress toward inclusive digital health, with emphasis on the most vulnerable populations. Not only reaching populations in conditions of greater social, economic, geographic, or cultural vulnerability but people and population groups that are not digitally literate.

Contact information

Pan American Health Organization

- o Sebastian Garcia Saisó, Director, EIH
- o Marcelo D'Agostino, dagostim@paho.org
- o Adrienne Cox, coxadr@paho.org