Developing a Data Quality Assessment Protocol with an Electronic Immunization Registry Component

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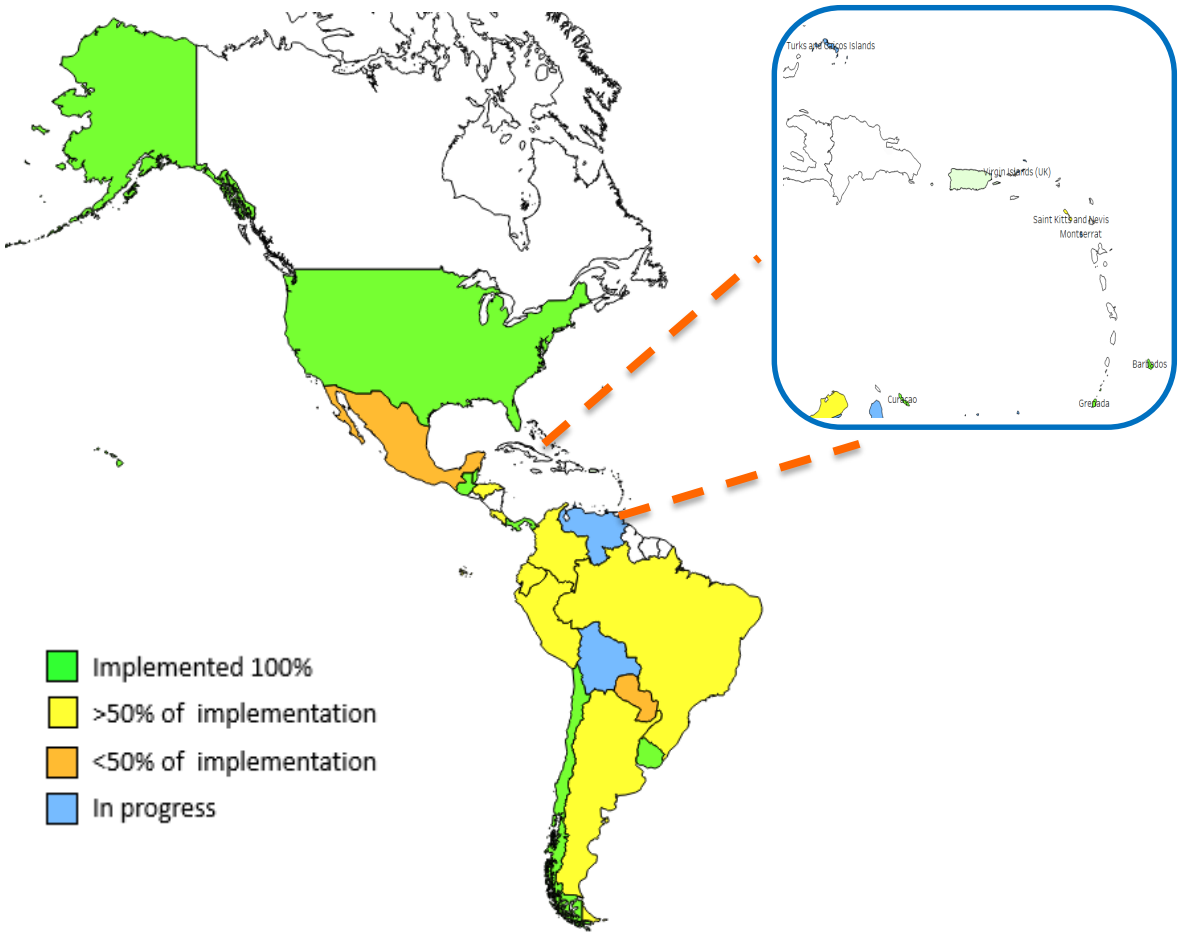
Background: EIRs in LMICs

Implementation of Electronic Immunization Registries (EIR)



- 9 countries with the EIR implemented.
- 8 countries with EIR implemented in more than 50% and <100%.
- EIR guidance document

- Low and middle-income countries (LMICs) are quickly moving towards developing and implementing electronic immunization registries (EIRs).
- There is limited guidance and no standard methodology on how to best assess the quality and usefulness of an EIR, nor to gauge progress on the development and implementation.

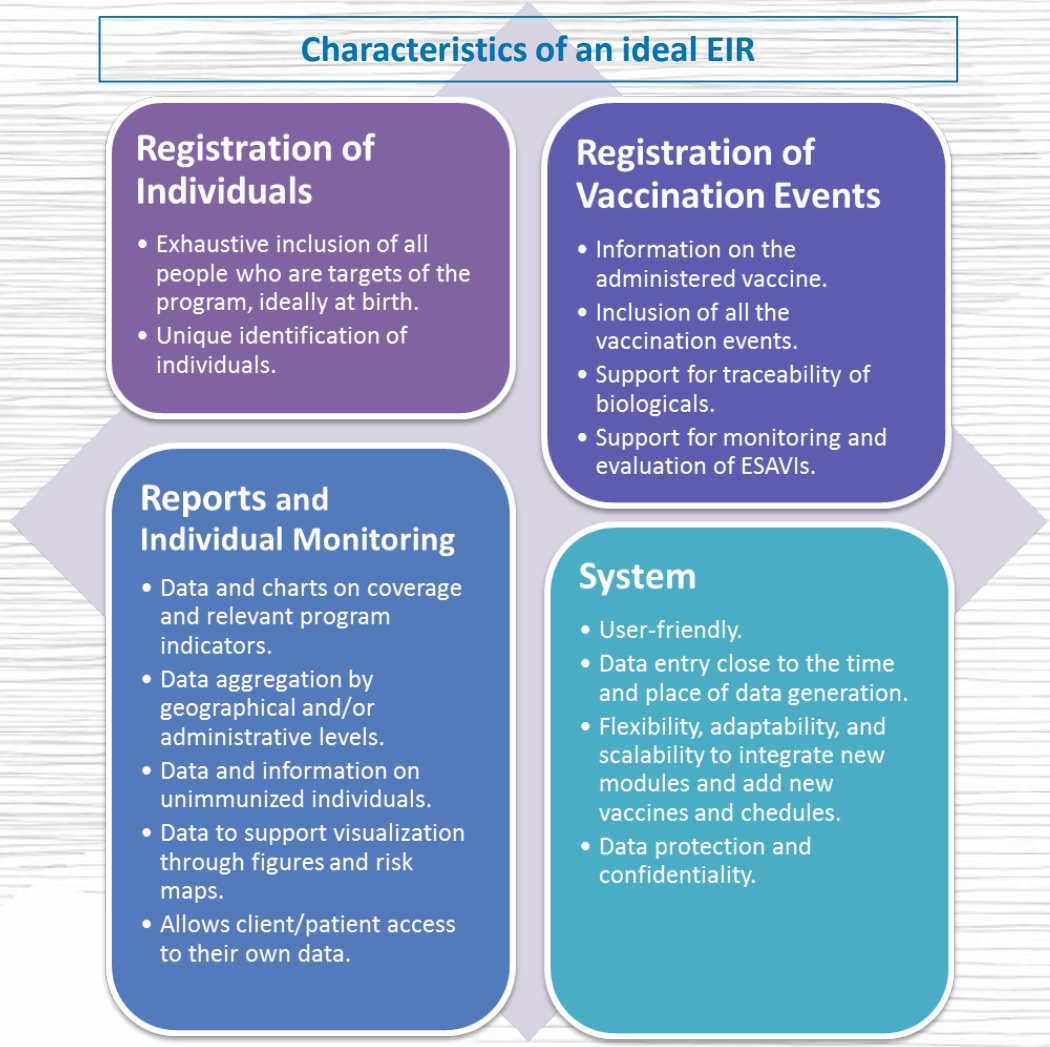
Background: DQS

- The Data Quality Self-assessment tool (DQS) is a standard World Health Organization (WHO) methodology used to assess immunization data quality that PAHO has adopted for use in Latin America and the Caribbean since 2005.
- The DQS is a flexible toolkit designed to provide a snapshot at all levels of the health system to determine:
    1. The accuracy of reported information
    2. The quality of the immunization monitoring system
- It results in practical recommendations aimed at improving the use of accurate, timely, and complete data for action.

Background: PAHO

- In April 2014, PAHO convened a small ad hoc working group which discussed the dimensions of an EIR that could be assessed, in addition to the data produced by the EIR.

- The working group decided on adding questions to the DQS for a description of the existing EIR; plus a specific set of questions added to the DQS quality checklists for the national, sub-national, and local levels regarding hardware and software; infrastructure; human resources; Internet access; data entry; and users' perceptions at the local level.



Background: PAHO DQS plus

- This work resulted in the “DQS Plus” a tool that has the usefulness and feasibility of implementing a DQS with added EIR questions and provides a structured description of the registry, as well as an assessment of the user acceptability.
- The DQS plus, to our knowledge, is the first methodology proposed for use in LMICs to assess not only data produced by an EIR, but also elements related to the EIR itself.
- Piloted in Panama (2014) and Honduras (2015).
  - Practical, same cost and time needed, multidisciplinary teams, results in data improvement plan (DIP)

Background: CDC IISA

- CDC has also been working to assess data quality and use in health information systems and has carried out immunization information system assessments (IISA) in the AFRO, SERO, and EURO regions.
- The IISA has been useful in providing health authorities with actions to update and improve the use of their EIRs, at all levels of the health system.
- Two examples:
  - In Kenya, the immunization reporting system is based on 80% paper records. Therefore, the goal of the IISA was to assess the immunization system and plan for future implementation of an EIR.
  - In Zambia, the goal of the assessment was to evaluate the data quality in their EIR vs paper records in order to make recommendations for improvement of the electronic system.

The Joint Protocol

Phase 1: Preparation/Planning

Identifying resources, partners, and staff, scheduling activities with partners and the Expanded Program of Immunization of the Ministry of Health. Methodologies for the assessment will be identified for use in the country context.

Phase 2: Desk review

- **Phase 2a: Contextual Review**
- **Phase 2b: National Data Review**
- **Phase 2c: Site selection**

EIR acceptability questionnaire should be sent to health facilities to gather preliminary data to further focus EIR acceptability interview tools. Plan to receive data at least two weeks prior to the start of Phase 3 in order to analyse and adapt tools.

Phase 3: Field Assessment/Data collection

Train the evaluation teams on questionnaire use, data collection, and interview skills. Teams visit districts and health facilities to administer questionnaires, summarize findings, develop team presentations, and present in a debrief meeting for all stakeholders.

Phase 4: Data analysis, preliminary results, draft action plan and report writing

Analysis of data collected from the assessment and preliminary report writing.

Summarize and first draft report on preliminary findings of the assessment, develop a draft action plan for next steps to address challenges, weaknesses, and improvements.

Phase 5: Presentation of results and final report

Debrief the Ministry of Health and other relevant authorities on preliminary findings and recommendations. Final report will be completed within 3 months of data collection and sent to the Ministry of Health.

Phase 6: Follow up on recommendations

Setting a timeline for follow up on recommendations is an important task and should be agreed upon with the Ministry of Health when recommendations are delivered.

- Since 2017, PAHO and CDC have been collaborating to combine tools and lessons learned to develop a DQS-plus/IISA that assesses data quality, use, and user acceptability of EIRs.

- This work has resulted in the *Modular Data Quality Assessment Protocol with Electronic Immunization Registry Component: Applicable for paper-based, mixed, and electronic systems.*

Methodology

Desk Review

- Detailed review of the immunization program and data reporting systems

Field assessment and data collection:

- Training of assessors, piloting of tools and more tailored revisions for country

Data quality review:

- Review of records: take home cards, clinic records, immunization registers (<1, 1-4, etc.), monthly immunization reports and the EIR.
- Document doses of Penta1 and 3, OPV 3 and MMR1
- Comparison of data to assess concordance.
- Random selection of the take home/ childhood clinic records are reviewed to assess accuracy of recording in all tools.

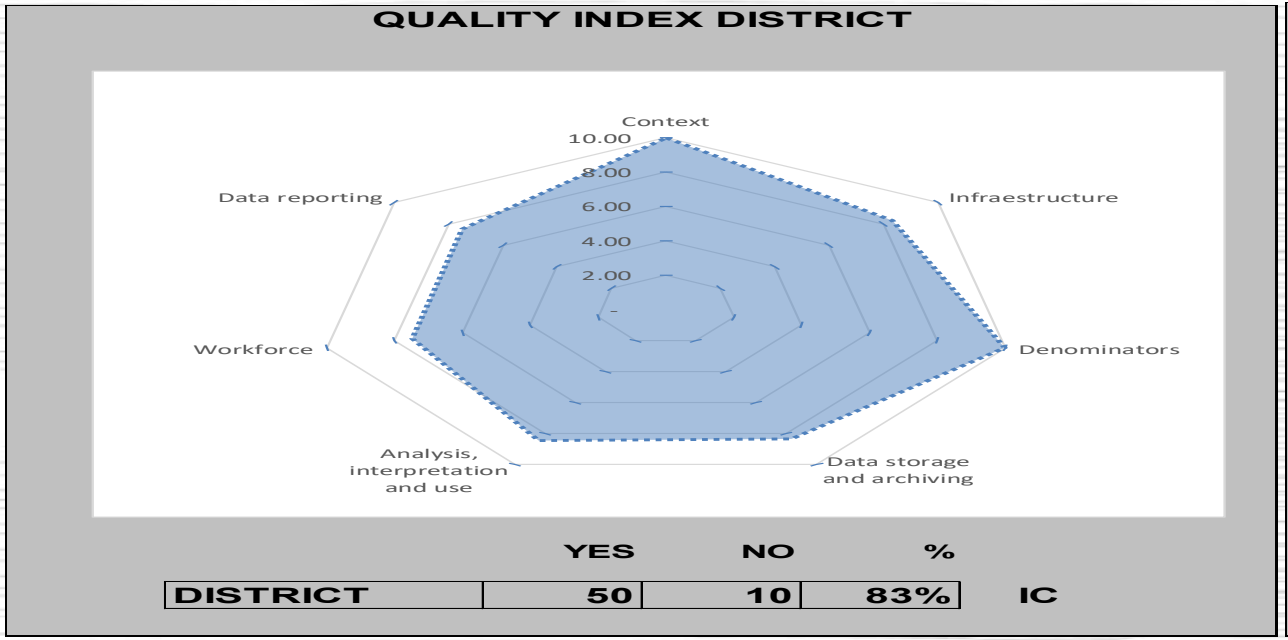
EIR

- Questionnaires administered at the level of the district and health facility to users regarding infrastructure, training, acceptability and utilization of functions (analysis, interpretation etc.), readiness to fully implement the EIR and the transition from paper based tools
- The assessment includes components to evaluate knowledge and understanding of target populations, supervision, and adequacy of the workforce.

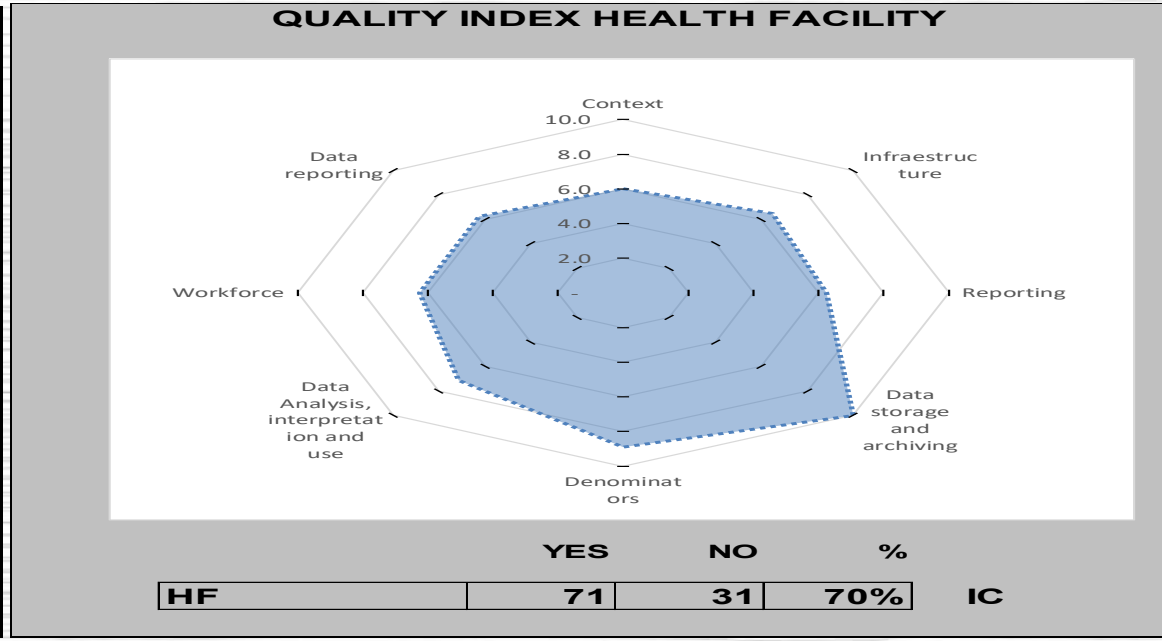
Objectives

- Rapidly assess quality of the vaccination data including completeness, accuracy and timeliness of reports and provide recommendations for improvement.
- Address the design and use of the information system, including an assessment of data use for action.
- Detect the widest possible breadth of data quality and use problems, within an abbreviated time span and budget.
- Evaluate the implementation and use of the EIR.
- Identify challenges and obstacles in transitioning from a paper based reporting system to an EIR.
- Evaluate the acceptability of the EIR system to end users at the health facilities.

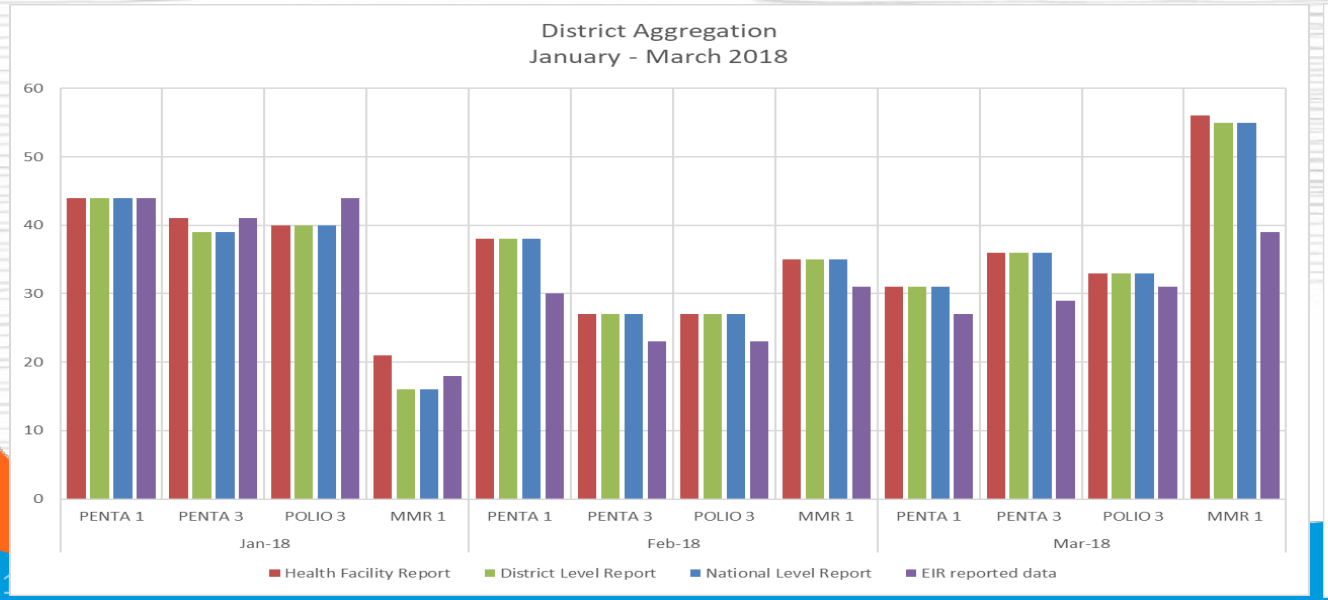
District and Health Facility Results

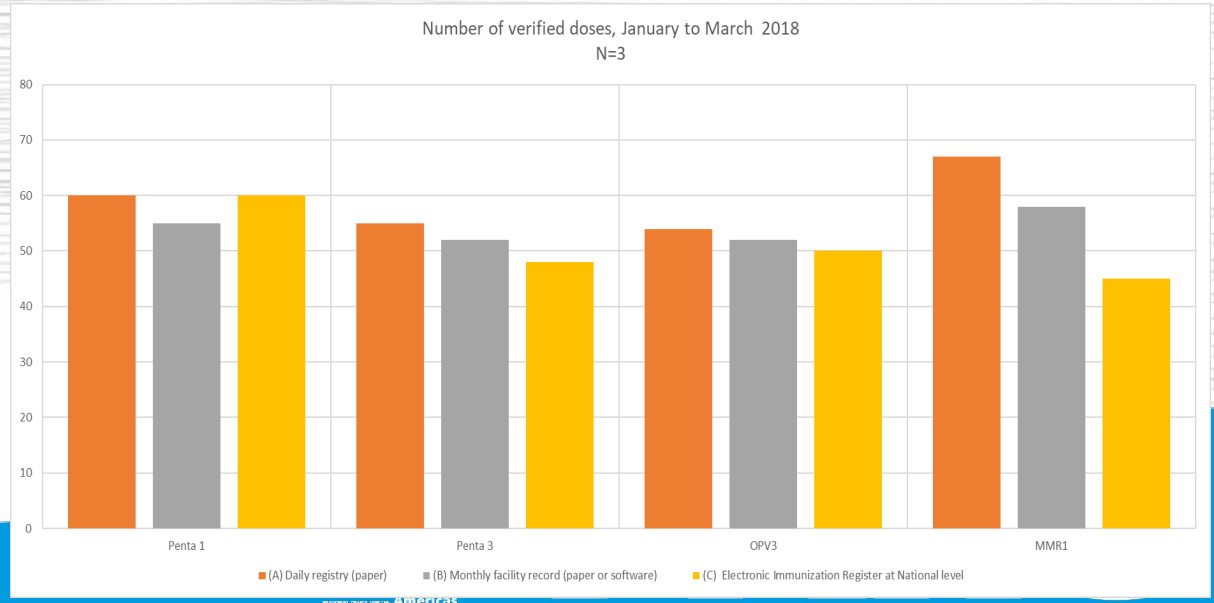


	YES	NO	%	
DISTRICT	50	10	83%	IC



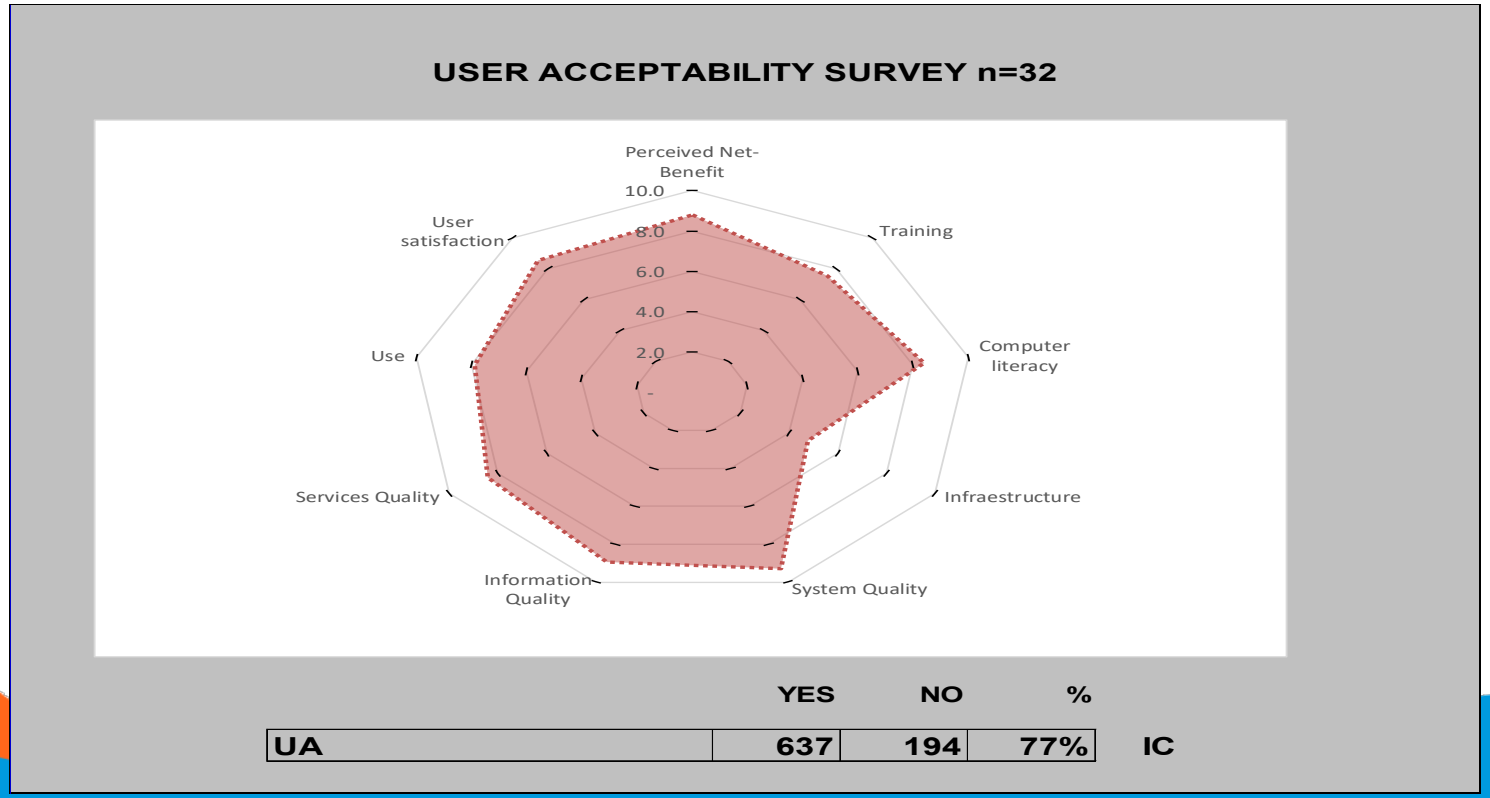
	YES	NO	%	
HF	71	31	70%	IC





National User Acceptability Results

General Statistics		Carriacou		St. Andrews*		St. Georges		St. Davids		St. Patrick		St. John and St. Mark		Total	
Experience	No trained and No use		0%		0%	1	13%		0%		0%	1	25%	2	6%
	Trained but not use		0%	3	50%	5	63%	1	33%	1	14%	1	25%	11	35%
	Use occasionally	1	33%		0%		0%		0%	3	43%		0%	4	13%
	Use regularly	1	33%	2	33%	2	25%	2	67%	3	43%	2	50%	12	39%
	Previously use but not now	1	33%		0%		0%		0%		0%		0%	1	3%
Workplace type	Medical station	2	67%	3	50%	8	100%	1	33%	1	14%	2	50%	17	55%
	Health center	1	33%	2	33%			2	67%	6	86%	2	50%	13	42%
Role	Administrative		0%		0%		0%		0%	1	14%		0%	1	3%
	Clinical Care	2	67%	1	17%		0%		0%	5	71%	2	50%	10	32%
	Mix Administrative and clini	1	33%	4	67%	8	100%	3	100%	1	14%	2	50%	19	61%



	YES	NO	%	
UA	637	194	77%	IC

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Implementation: Grenada Pilot

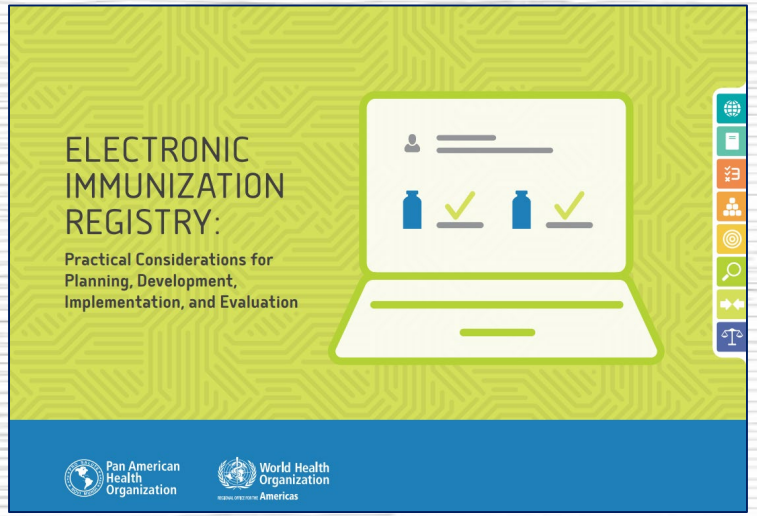
- In 2017, the Grenada Ministry of Health requested PAHO and CDC evaluate their data quality and the recently implemented EIR to provide recommendations for improvement.
- The pilot began in May 2018, with the objective of evaluating aspects of data quality and the user acceptability of the EIR system; promoting data use at all levels; and identifying challenges in transitioning from a paper-based reporting system to an EIR.
- Results were presented to the country and recommendations based on the assessment were presented with a DIP.

Revisions and Second Pilot

- Following the successful implementation in Grenada, revisions were made to streamline the protocol, taking into consideration lessons learned.
- Indications were introduced where adaptions were possible based on country context and characteristics of the IIS/EIR.
- Country perspectives were taken into account for feedback and revision of the protocol.
- Then in May 2019 the second pilot was carried out as a desk review in Guatemala.

Related and On-going Work

- The next two pilot locations have been selected and discussions are underway to carry them out in 2019-2020.
- After the pilots, the assessment protocol will be shared with more countries to gather feedback on applicability and feasibility of adapting and applying the methodology.
- PAHO EIR Guide was published in 2018 is being used globally, it has been developed into an eLearning course.
- The CDC EIR readiness assessment tool is under development and almost to a pilot stage.



http://iris.paho.org/xmlui/handle/123456789/34865

Conclusions

- The DQA with EIR component protocol is a practical approach to assess an EIR and to help generate actionable recommendations for LMICs.
- Provides a standardized methodology for assessing data quality in a system with or without an EIR, while being adaptable to country specific contexts.
- Further work on defining EIR functional standards in LMICs will help adapt this improved EIR assessment tool for use in the Americas, and beyond.

Thank you! Gracias!

Acknowledgements:
Martha Velandia and Marcela Contreras, PAHO
Kristie Clarke, Anita Samuels, and Colleen Scott, CDC
Hayden Hopkin and Carol Telesford-Charles, MOH Grenada
Marc Rondy, PAHO Guatemala