

COVID-19 Information Systems and Digital Health: After-Action Review of the First 100 Days in Quarantine

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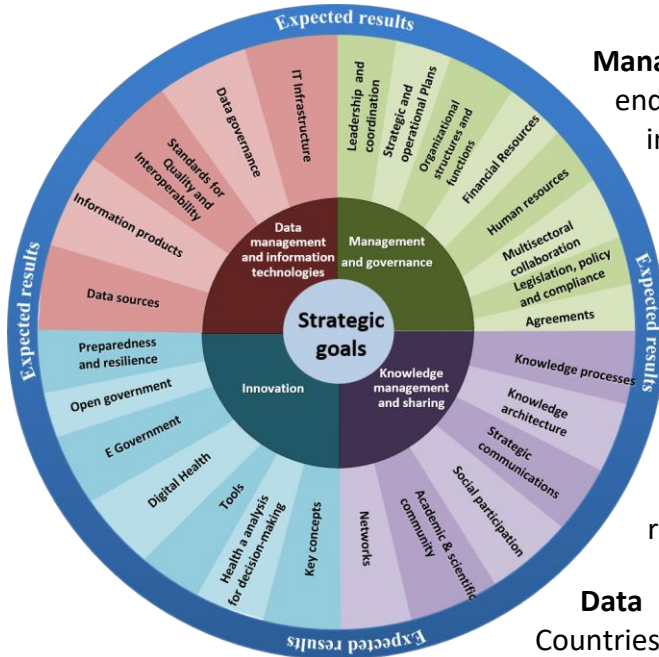
IMPORTANT NOTE: Stay informed with timely information on the coronavirus disease (COVID-19), available on the [PAHO](#) and [WHO](#) websites and through your national and local public health authorities.

Introduction

In just a few months, the COVID-19 pandemic has had a disruptive impact on all sectors of society: on how we live, how we govern ourselves, how we mobilize, how we work, how we educate ourselves, and how nations manage and how we manage our health ourselves. In short, it has targeted many social structures that we believed to be fixed.

As for the public health sector, many lessons have emerged to improve the response to future pandemics but also to improve the health system from the perspective of information systems for health and finally of digital health.

These lessons learned were discussed and analyzed with a group of partners, experts, and representatives from the areas of information systems and digital health in the countries of the Americas. They are based on the [regionally agreed framework for Information Systems for Health \(IS4H\)](#), and are organized according to its four strategic areas: **Management and Governance**, **Data Management and Information Technologies**, **Knowledge Management and Sharing**, and **Innovation**.



Management and Governance. As stated and endorsed by PAHO’s Member States, the majority of information systems for health have focused primarily on software development and the adoption of isolated technology solutions. They have not been conceived as a strategic governance mechanism that ensures the convergence of investments and action, as well as the interconnection and interoperability of databases and applications that facilitate access to reliable data, information, and knowledge at the right time, in right place, and in the right format.

Data Management and Information Technologies. Countries of the Americas recognized that timely, accessible, reliable, and disaggregated quality data are key to decision-making and transparent reporting. They also agreed that information and communication technologies, the use of digital health technologies, automated data collection, and adequate funding and design of information systems for health are essential for obtaining more readily available and timely higher-quality information. Therefore, well-managed digital tools and information

systems will help significantly to overcome many barriers and obstacles to the strengthening of health systems in the fight against the pandemic.

Knowledge Management and Sharing. Health information reemerges as a key factor supporting research, planning, decision-making, priority setting, policy-making, operations, monitoring, and evaluation, which should be based on the greatest possible evidence and certified knowledge. Nonetheless, there are persistent disparities between countries in the management of the data and information provided by their information systems for health.

Innovation. Rapid technological development requires countries and institutions to prepare for innovations that will impact health systems, such as predictive analytics, modeling, the internet of things, cloud computing, big data analysis, machine learning, and artificial intelligence, among others.

Below are some of the high-level lessons learned that could be used for the current phase of the response to the pandemic.

What can be **improved** and **how**?

What	How
<p>Strengthening information systems for health¹</p>	<ul style="list-style-type: none"> ▪ By prioritizing the following areas: <i>Governance; Multisectoral management; Technology infrastructure; Standards and interoperability; Automatization and interoperability of electronic health records; Privacy, confidentiality, and security of data; Data and information processing; Knowledge management and sharing; Innovation; and Risk management</i> ▪ By adopting guiding principles, policies and official governance mechanisms for data and information management; ▪ By adopting a change management strategy to facilitate the rapid appropriation of different tools and work schemes focused on the intensive use of technologies;
<p>Redefinition of the role of information systems and digital health at the first level of care²</p>	<ul style="list-style-type: none"> ▪ By adopting tools for tele-consultations, remote patient monitoring, and remote communication platforms to manage care and to facilitating home monitoring of people with COVID-19; ▪ By enabling telemedicine for many of the key clinical services to continue to operate regularly and uninterrupted, both in preparation for and in the course of the public health emergency.

¹ See PAHO Factsheet “[COVID-19 and the Importance of Strengthening Information Systems](#)”

² See PAHO factsheet “[COVID-19 and the Role of Information Systems and Technologies at the First Level of Care](#)”

What	How
<p>Strategic coordination on digital health for a smarter adoption of digital health solutions³</p>	<ul style="list-style-type: none"> ▪ By formally defining rules of engagement, roles and responsibilities of the different actors, including vendors; ▪ By defining or adopting a protocol, method or technical criteria for the analysis and selection of available tools; ▪ By engaging international organizations such as PAHO and IDB in the decision-making process.
<p>Improvement of data management and data collection</p>	<ul style="list-style-type: none"> ▪ By adopting international standards and standard operating procedures for data management that ensure quality, some levels of disaggregation, privacy, confidentiality, security, openness, and interoperability; ▪ By adopting a common platform such as GoData within the framework of a national policy of critical data management.
<p>Better use of digital solutions</p>	<ul style="list-style-type: none"> ▪ By ensuring an adequate and stable technological infrastructure, which allows transfer of high-resolution images and use of platforms for tele-consultations, information sharing, education or communications in real time; ▪ By designing applications guaranteeing that the technology supports the needs of the users, including care and administrative aspects of the institutions; ▪ By considering always the population segments with access barriers due to connectivity/infrastructure problems.
<p>Strategic learning for immediate adoption of digital solutions</p>	<ul style="list-style-type: none"> ▪ By implementing a digital literacy program as an ongoing mechanism to strengthen human resources skills to work within this information (and hyper-connected) society.

³ See PAHO Factsheet “[Information Technologies: The Main Means of Social Interaction during the Pandemic](#)”

What	How
<p>Critical information dissemination for reducing the infodemic⁴</p>	<ul style="list-style-type: none"> ▪ By prioritizing the following areas: <ul style="list-style-type: none"> ○ <i>Support open science</i> ○ <i>Open (quality) data</i> ○ <i>Identify and promote certified evidence</i> ○ <i>Analyze metrics of information used by your audiences</i> ○ <i>Share data and information responsibly</i> ○ <i>Avoid fake news</i> ○ <i>Report harmful rumors</i> ○ <i>Protect privacy</i> ○ <i>Participate in social conversations</i> ○ <i>Keep learning</i> ○ <i>Continue collaborating</i>
<p>Leverage innovation as much as possible</p>	<ul style="list-style-type: none"> ▪ By understanding the power of unstructured data analytics in the fight against COVID-19; ▪ By understanding and adopting new concepts such as predictive analytics, modeling, the internet of things, cloud computing, big data analysis, machine learning, and artificial intelligence, among others; ▪ By strengthening or creating innovation ecosystems for the creation or adoption of potential digital solutions to support the response to the pandemic; ▪ By adapting or adopting innovative solutions that have worked in other sectors and that could be incorporated into the health sector, such as blockchain technology.
<p>Improvement of strategic networking</p>	<ul style="list-style-type: none"> ▪ By expanding decision-making circles for integrating key experts and institutions from other non-health areas, to avoid duplication of futile efforts and repetition of tasks; ▪ By creating a governance model based on strategic networking which supports a rapid response to any specific need on information systems and digital health; ▪ By establishing agile communication mechanisms, eliminating obstacles to governance and fast action; ▪ By establishing public-private alliance for the exchange of ideas, information, knowledge, and, in particular, good practices on the adoption of digital solutions in the fight against the pandemic.

⁴ See PAHO Factsheet “[Understanding the Infodemic and Misinformation in the Fight against COVID-19](#)”

What are some of the **resources developed by our IS4H team in collaboration with partners?**

Webinars organized by the IS4H/EIH Team at PAHO/WHO

1. [COVID-19: The Potential of Digital Health and Information Systems for Health in the Fight against the Pandemic](#)
2. [COVID-19 and Telemedicine: Ready, Set, Click](#)
3. [Orientación internacional para la certificación y clasificación \(codificación\) del COVID-19 como causa de muerte](#)
4. [Certifying and Coding COVID-19 as Cause of death-20200618 1506-1](#)

Factsheets

Why Predictive Modeling is Critical in the Fight against COVID-19

Download: [English](#)

COVID-19 and the Role of Information Systems and Technologies at the First Level of Care

Download: [English](#) - [Spanish](#) - [Portuguese](#)

COVID-19 and the importance of strengthening Information Systems

Download: [English](#) - [Spanish](#) - [Portuguese](#)

Understanding the Infodemic and Misinformation in the fight against COVID-19

Download: [English](#) - [Spanish](#) - [Portuguese](#)

Information Technologies: The Main Means of Social Interaction during the Pandemic

Download: [English](#) - [Spanish](#) - [Portuguese](#)

Why Data Disaggregation is Key during a Pandemic

Download: [English](#) - [Spanish](#) - [Portuguese](#)

Why are Electronic Health Records (EHRs) Key during a Pandemic?

Download: [English](#) - [Spanish](#) - [Portuguese](#)

Teleconsultations during a Pandemic

Download: [English](#) - [Spanish](#) - [Portuguese](#)

Podcasts COVID-19

Why Predictive Modeling is Critical in the Fight against COVID-19

Download: [English](#) - [Spanish](#) - [Portuguese](#)

COVID-19 and the Role of Information Systems and Technologies at the First Level of Care

Download: [English](#) - [Spanish](#) - [Portuguese](#)

COVID-19 and the Importance of Strengthening Information Systems

Download: [English](#) - [Spanish](#) - [Portuguese](#)

Understanding the Infodemic and Misinformation in the Fight against COVID-19

Download: [English](#) - [Spanish](#) - [Portuguese](#)

The Potential of Frequently Used Information Technologies during the Pandemic

Download: [English](#) - [Spanish](#) - [Portuguese](#)

Why Data Disaggregation is Key during a Pandemic

Download: [English](#) - [Spanish](#) - [Portuguese](#)

Why are Electronic Health Records (EHRs) Key during a Pandemic?

Download: [English](#) - [Spanish](#) - [Portuguese](#)

Teleconsultations during a Pandemic

Download: [English](#) - [Spanish](#) - [Portuguese](#)

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