Connectathon and Regional Meeting on Digital Transformation of the Health Sector

Positioning public health in the age of digital interdependence

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PAHO/EIH/IS/22-0031

CONNECTATHON AND REGIONAL MEETING ON DIGITAL TRANSFORMATION OF THE HEALTH SECTOR

Santiago, Chile
28 May-2 June 2022

MEETING REPORT

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

In partnership with
PAHO/WHO Representative Office in Chile
Department of Family, Health Promotion, and Life Course (FPL)
Department of Noncommunicable Diseases and Mental Health (NMH)
Department of Health Systems and Services (HSS)
Office of Legal Counsel (LEG)

Pan American Health Organization
World Health Organization

Connectathon was jointly organized with the Digital Health team of the
Inter-American Development Bank

Acknowledgments

The Pan American Health Organization would like to thank the United States of America for the financial contribution that made it possible to hold this event, a milestone in the digital transformation of the health sector in the Region of the Americas.

Contents

Acronyms

CIIPS	Centro de Implementación e Innovación en Políticas de Salud, Argentina
DDCC:VS	Digital documentation of COVID-19 certificates: vaccination status
EIH	Department of Evidence and Intelligence for Action in Health, PAHO
FLC	First level of care
FPL	Department of Family, Health Promotion, and Life Course, PAHO
HSS	Department of Health Systems and Services, PAHO
ICT	Information and communication technology
IDB	Inter-American Development Bank
IECS	Instituto de Efectividad Clínica y Sanitaria, Argentina
IHE:	Integrating the Healthcare Enterprise
IM:	Comprehensive Family Immunization Unit, PAHO
IS4H:	Information systems for health
LACChain	Global Alliance to Promote the Use of Blockchain in Latin America and the Caribbean
NCD	Noncommunicable diseases
NMH	Department of Noncommunicable Diseases and Mental Health, PAHO
PAHO	Pan American Health Organization
RACSEL	American Cooperation Network for Electronic Health
UBA	University of Buenos Aires
WHO	World Health Organization

Message from the Director

One of the most rapidly expanding areas in public health is digital transformation. While this is an inevitable development, the innumerable benefits of transformation must cease to be the domain of the few and become the right of all.

Today, revamped, interconnected, and interoperable information systems, along with ethical and sustainable use of digital applications, are changing the way healthcare is delivered, opening up possibilities unprecedented in human history. There are many opportunities to seize, many challenges to overcome, and many policy decisions to make in order to maximize what digital tools for health offer us. This is why we convened this important event, made possible by generous funding from the United States of America.

Carissa F. Etienne
Director of the Pan American Health Organization

Summary

Within the framework of the eight guiding principles of digital transformation of the health sector, as well as the *Roadmap for the Digital Transformation of the Health Sector in the Region of the Americas*, approved by the Member States at the 59th Directing Council of the Pan American Health Organization (PAHO), and with the contribution of the United States of America, work has commenced to operationalize:

- A regional public good that serves as an "all-in-one" telehealth platform for noncommunicable diseases (NCDs). This platform will be available to every country in the Region, along with innovative technical cooperation models based on international standards and good practice, training, and a review of the models of care, with a view to covering the different scenarios in the fight against NCDs (See Concept Note in Annex 1).

- A regional public good that introduces an interoperable, cybersecure vaccination certificate that digitally documents a person's immunization status, whether as protection against COVID-19, a guarantee of continuity of care, or proof of vaccination for purposes other than medical care. It is part of the Regional Public Goods Initiative spearheaded by the Inter-American Development Bank (IDB) in collaboration with PAHO (See Concept Note in Annex 2).

To move forward in the planning of the two projects, PAHO and the IDB joined forces and held a working meeting in Santiago, Chile, from 30 May to 2 June 2022, with representatives from 17 countries in attendance.[1]

Opening session: Ministry of Health of Chile, EIH PAHO/WHO, IDB, and WHO.

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[1] Bahamas, Belize, Bolivia (Plurinational State of), Chile, Colombia, Costa Rica, Dominica, Dominican Republic, Ecuador, El Salvador, Honduras, Nicaragua, Panama, Paraguay, Peru, Suriname, and Uruguay.

The meeting was technical, political, and strategic in nature and included plenary sessions, workshops, project discussions, and bilateral meetings to develop progress indicators, discuss potential risks, and identify factors critical to the success of projects throughout the Region. This event is an important milestone on the path toward digital transformation of the health sector in the Americas in the age of digital interdependence.

Event's general coordination team: PAHO, WHO, IDB.

Participants in the opening panel

Marcelo D'Agostino, Senior Advisor on Information Systems and Digital Health, PAHO/WHO, Washington, D.C.

Alexander Recabarren, Cabinet Advisor, Undersecretariat of Healthcare Networks for Primary Health Care and Digital Health Issues, Ministry of Health, Chile

Sebastian Garcia Saisó, Director, Department of Evidence and Intelligence for Action in Health, PAHO/WHO, Washington, D.C.

María Florencia Attademo-Hirt, IDB Representative in Chile

Derrick Muneene, Unit Head, Capacity Building and Collaboration Team, Digital Health and Innovation Department, WHO, Geneva, Switzerland

Structure of the event
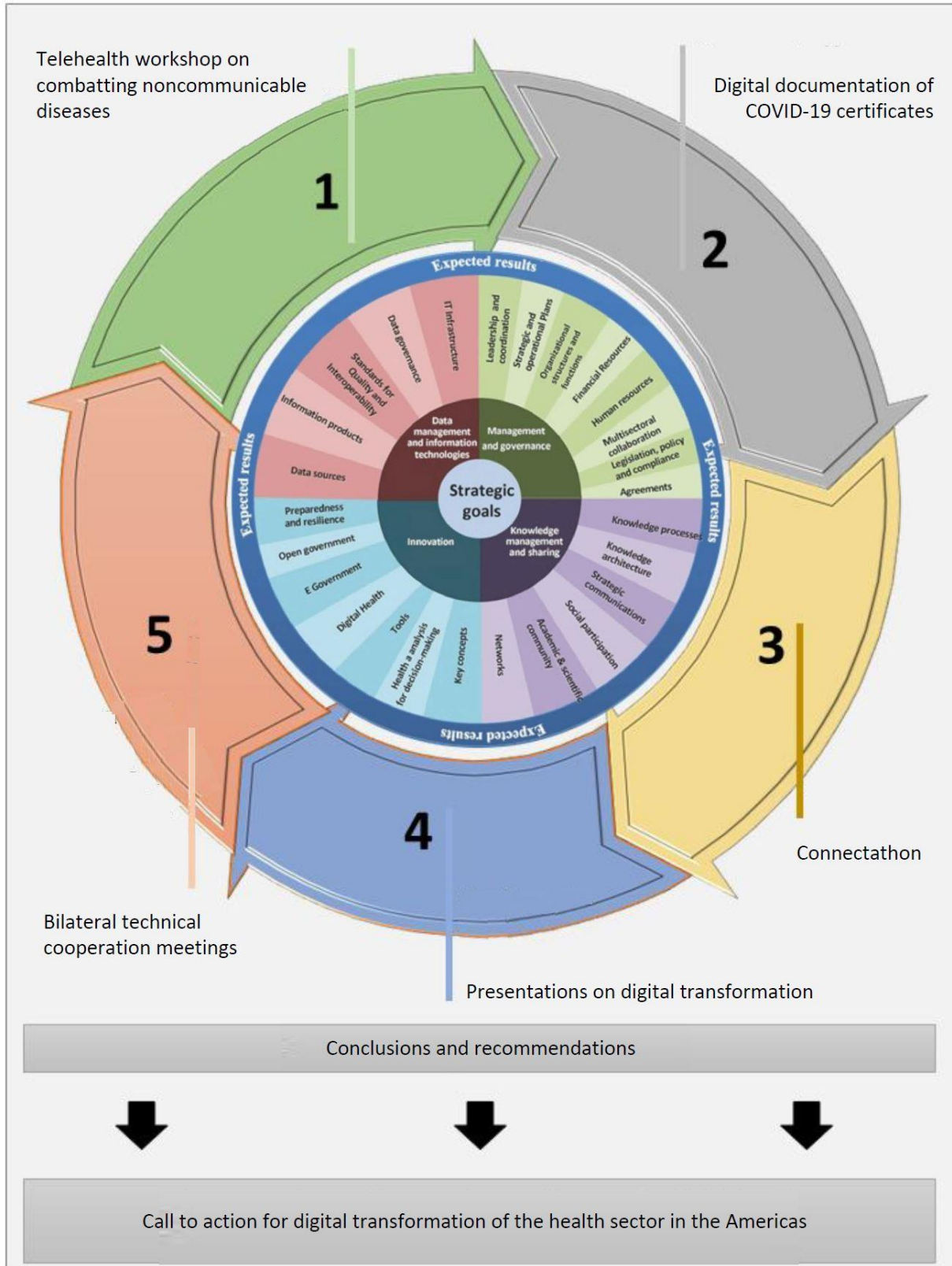
150 participants

17 countries

International organizations, universities, collaborating centers, specialized networks

Digital transformation

Health Information Systems

Telehealth for NCDs

Digital documentation of COVID-19 certificates

1 Workshop: Telehealth in combatting NCDs

With a view to strengthening the use of telehealth in combatting NCDs, this workshop held several discussions with the following specific objectives:

- Delve more deeply into the factors that facilitate the expansion of telehealth services in the different countries, within the framework of digital transformation in health.

- Define the telehealth modalities in primary care and their enabling tools.

- Establish the priority areas and essential topics to facilitate the preparation of national roadmaps within the framework of government digital transformation initiatives.

- Share experiences and lessons learned about telehealth developments and programs in the participating countries, with special attention to NCDs.

Summary of the discussions

The countries exchanged views and shared experiences, challenges, and lessons learned from telehealth projects, noting the problems and opportunities they had encountered.

The following is a summary of the main issues discussed, which are centered on four lines of work:
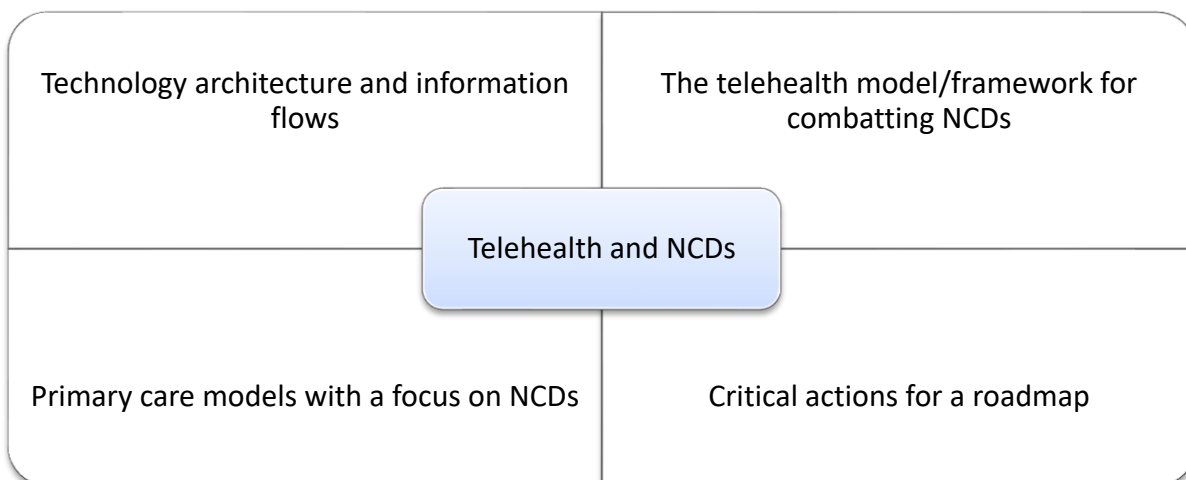
"Telehealth is one of the critical factors for success in combatting NCDs. It will be a key piece in the development of more resilient health systems."

Anselm Hennis, Director, NMH, PAHO/WHO, Washington, D.C.

Technology architecture and information flows	The telehealth model/framework for combatting NCDs
Telehealth and NCDs	
Primary care models with a focus on NCDs	Critical actions for a roadmap

Technology architecture and information flows

The participating countries analyzed the strategies for moving forward, considering the following aspects:

- Use of the current information technology infrastructure – chiefly connectivity, bandwidth, and digital literacy – as a facilitating mechanism in health institutions, especially primary care centers.

- Adoption of new paradigms at the user and service provider level to include new forms of communication beyond instant messaging and telephone calls as customary telehealth practices.

- Preparation and implementation of transition plans that will make the shift from "paper" data management to fully automated models possible.

- Positioning of telehealth services or programs as a permanent fixture in the development of resilient health systems, including the review of regulatory and legal aspects.

- Generation of the information architecture necessary for introducing interoperable digital health applications as part of the models of care developed for telehealth in NCDs. Examples include platforms for electronic health records, user or patient portals, mobile messaging or communication apps, etc.

- Creation of multidisciplinary technical groups that provide remote support and education, prioritizing communities or population groups in situations of vulnerability, especially people living in remote areas where access to technology platforms is difficult.

The telehealth model/framework for combating NCDs

After analyzing and discussing the various interventions, it was agreed that telehealth action plans for NCDs should focus on the following:

- Care for the four diseases responsible for the majority of deaths:

  - cardiovascular diseases
  - cancer
  - diabetes
  - chronic respiratory diseases

- Prevention of modifiable and biological risk factors: smoking, harmful use of alcohol, insufficient physical activity, unhealthy eating, overweight and obesity, hypertension, alterations in blood glucose levels, etc.

While these areas are priorities, mental health and environmental health were also mentioned as areas of interest for promoting telehealth activities.

Primary care modalities with a focus on NCDs

The workshop examined the design of three modalities of telehealth for primary care with a focus on NCDs, based on the proposals of the Medical University of South Carolina.
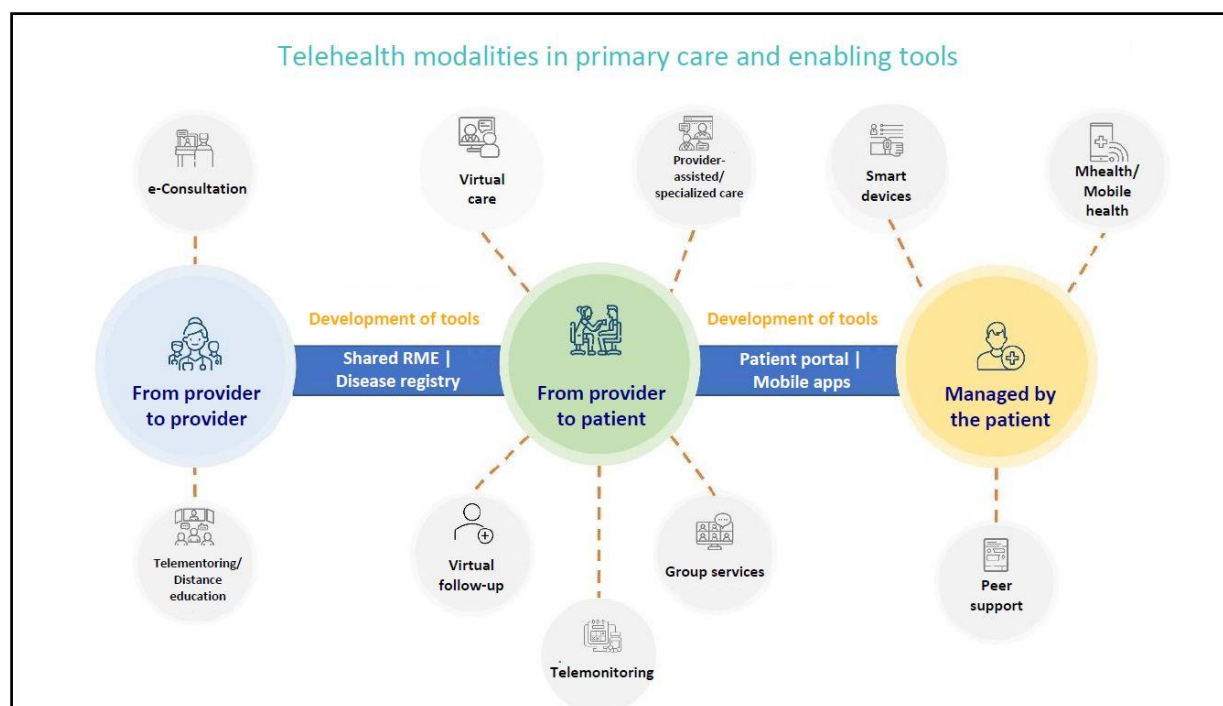
Telehealth modalities in primary care and enabling tools.

Critical actions for a roadmap

The workshop determined the main lines of action for facilitating telehealth initiatives on NCDs, prioritizing adoption of the All-in-one Telehealth Platform for NCDs as a regional public good, namely:

● Ensure the appropriate technology infrastructure for the project, paying attention to aspects such as the interoperability of electronic clinical histories, creation of a single registry, and electronic management by users.

● Establish a national telehealth program, if feasible. This program should serve as the main management entity and have the technical capacity to set priorities and standards and offer technology solutions that facilitate countrywide interoperability.

● Establish governance mechanisms. This process should be characterized by multisectoral interdisciplinary participation involving stakeholders, professional associations and other key actors.

- Develop telehealth protocols for NCDs, especially in the areas of clinical management and the user path to accessing services.

- Work on change management and training in the institutions that will be implementing the telehealth program, as well as in communities.

- In a standardized manner, define the levels of maturity for the permanent and sustainable implementation of telehealth services for NCDs. It was agreed that the tool designed by PAHO and the IDB would be used for this process.

COVID-19 AND TELEMEDICINE
Tool for assessing the maturity level of health institutions to implement telemedicine services

Version 3.0, July 2020

PAHO   IDB

"Access to critical data at the right time and in the right format is key to informed decision-making for combatting NCDs."

Roberta Caixeta, NMH, PAHO/WHO, Washington, D.C.
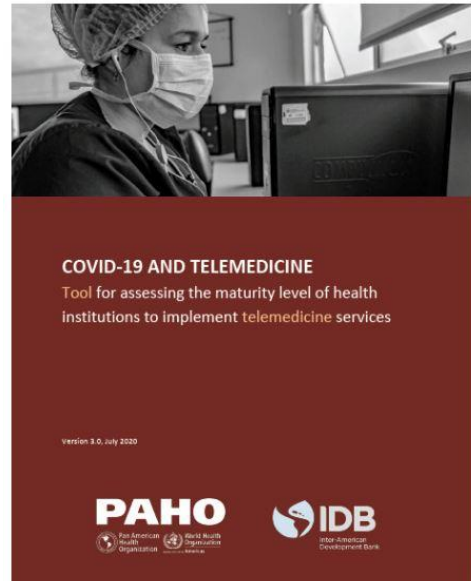
Telehealth in combatting noncommunicable diseases

Results and benefits for the countries

Active and accessible health services during periods of community transmission in health emergencies, especially in situations of social confinement.

Continuity of care for people with NCDs thanks to online communication between professionals and users.

Surveillance systems and health service delivery with a positive impact on the quality of life of people with noncommunicable diseases.

Greater independence, self-care, and adherence to therapy.

2   Digital documentation of COVID-19 certificates

With a view to strengthening application of the WHO technical guidance on digital documentation of COVID-19 certificates: vaccination status (DDCC:VS), the workshop discussions had the following specific objectives:

- Strengthen the digital transformation processes of national immunization programs in the Americas.

- Review, list, and define the critical factors for proper implementation of digital documentation of vaccination certificates.

- Prepare a roadmap to ensure rapid, sustainable, and evidence-based implementation of digital documentation of vaccination certificates.

- Make progress in adopting the tool that measures country maturity in digital documentation of COVID-19 certificates of vaccination status.

- Highlight opportunities for technical cooperation under this initiative, especially those of a bilateral or subregional nature.

Summary of the discussions

The countries shared visions, experiences, challenges, progress, and lessons learned in the implementation of projects on electronic vaccination certificates and digital health in immunization, describing the main problems and opportunities they had encountered.

Below is a summary of the main topics discussed, which are centered on four lines of thought:

Critical factors for implementing digital COVID-19 certificates: vaccination status	Roadmap and strategic actions
Digital transformation in national immunization programs	
Maturity of digital documentation of COVID-19 certificates: vaccination status	Opportunities for technical cooperation
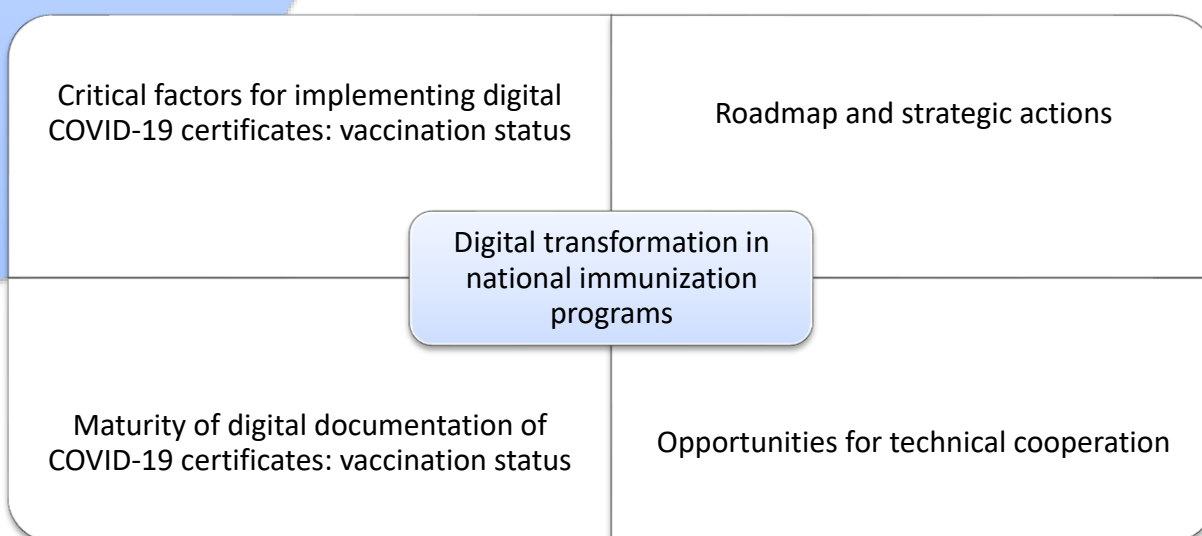
Digital transformation in national immunization programs

The countries are currently at different levels of maturity in terms of managing and monitoring health records, including the results of COVID-19 vaccination trials. One of the innovations stemming from the need for digital processes during the pandemic is electronic certificates of COVID-19 vaccination and diagnostic testing. This process, as well as the technology infrastructure necessary for carrying it out, were the main topics of the workshop, since they are key to digital transformation in national immunization programs.

Critical factors for the introduction of digital COVID-19 certificates: vaccination status

- Maintain political support and technical leadership as mainstays of public policies that ensure the digital transformation of immunization programs, taking into account interdisciplinarity and multisectoral consensus.

- Adopt governance mechanisms that consider technical and policy frameworks, ensuring the availability of trained human resources, as well as the budgets and financing to promote the sustainability and expansion of these models.

- Develop or strengthen the necessary regulatory framework as the facilitator of operational processes.

- Establish mechanisms for the operation, maintenance, and continuous updating of the platforms and technology infrastructure.

- Preserve the features of confidentiality, privacy, cybersecurity, and the ethical use of data.

- Integrate interoperability standards in the existing systems of the vaccination program, in both the health sector and other sectors.

"Digital transformation of immunization programs must be one of the strategic pillars for expanding vaccination coverage in the countries."

Luis Andrés de Francisco, Director, FPL, PAHO/WHO, Washington, D.C.

Roadmap and strategic actions

Within the framework of the *Roadmap for the Digital Transformation of the Health Sector in the Region of the Americas*, the *Immunization Agenda 2030*, and the document *Reinvigorating Immunization as a Public Good for Universal Health*, a critical and strategic reflection was conducted to determine the benchmarks that national roadmaps should establish for the digital transformation of immunization programs, with emphasis on the digital documentation of COVID-19 vaccination certificates.

The figure below indicates the priorities for the period 2022 that will lay the groundwork for scaling up the technology model and platform to the national immunization programs.

Roadmap for regional implementation of digital COVID-19 vaccination certificates
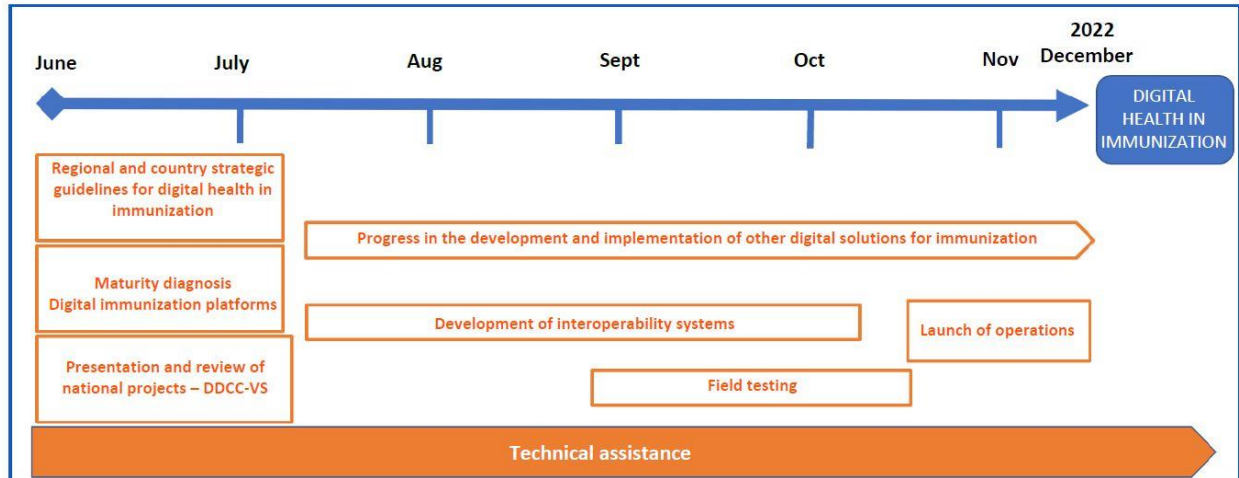
Maturity of digital documentation of COVID-19 certificates

In the process of adopting the WHO technical guidance on digital documentation of COVID-19 certificates: vaccination status, an exercise was conducted during the workshop to study the domains for the application of this guidance. To arrive at conclusions and regional recommendations, the participating countries used the tool that PAHO developed, which, in a standardized manner, analyzes the countries' preparedness to advance this process.

Technical session with participating countries.

The participants commented on the tool's domains, indicated in the table below. They also agreed to coordinate application of the tool to assess country maturity in the implementation of digital certificates; and they underscored the need for constant monitoring of digital transformation processes in immunization programs.

Tool for measuring the maturity of digital documentation of COVID-19 certificates: domains and description

Domain	Description
1. Investments and strategies (STRIN)	Indicates the timeframe, costs, benefits, impacts, and value added of the digital vaccination certificate strategy.
2. Infrastructure (INFRA)	Identifies existing health investments that can be tailored to the context of DDCC:VS. These include mobile phone coverage and public key infrastructure (PKI).
3. Legislation, policy, and compliance (LEPOC)	Covers standards and policies on the protection and ethical treatment of personal data in DDCC:VS.
4. Leadership and governance (LAGOV)	Identifies the ministries, groups, or entities in charge of leading and coordinating the governance, implementation, and evaluation of the digital certificate strategy.
5. Workforce/Staff (WOKFE)	Defines the change management processes, degree of digital literacy, and training and capacity building necessary for health workers to make good use of DDCC:VS.
6. Services and applications (SERAP)	Verifies the existence of applications, workflows, software, and open-source products to cover the administration of vaccines and the issuance of digital COVID-19 certificates.
7. Standards and interoperability (STIN)	Covers interoperability frameworks in health that can be integrated in DDCC:VS.

DDCC:VS: digital documentation of COVID-19 certificates: vaccination status
PKI: public key infrastructure.

The participants also noted the need to introduce the principle of inclusive digital health in the digital documentation of immunization programs. In another session, they presented the nominal electronic vaccination registry, a digital tool for use in immunization; in this session, they were able to review, ask questions, and share information.

Opportunities for technical cooperation

The discussions on technical cooperation focused on the need for an intensive effort to advance toward full implementation of interoperable, cybersecure vaccination certificates. These digital

certificates document people's immunization status and can be used as protection against COVID-19, to ensure the continuity of care, or for non-care purposes. The participants agreed to cooperate in the following areas:

● Designing and implementing digital literacy programs to raise awareness.

● Clarifying the potential of WHO technical guidance on digital documentation of COVID-19 certificates: vaccination status and their application in immunization.

● Laying the foundations for a new technology architecture that uses digital certificates for other vaccines or processes, such as: routine vaccination, birth or death registration, etc.

● Encouraging and facilitating the development of mechanisms for sharing information, experiences, and knowledge among the countries of the Region or with other regions.

● Adopting standardized mechanisms to monitor maturity in the application of the technical guidance issued for this initiative.

● Adopting mechanisms that facilitate the co-creation of complementary projects, and calling for investment from development partners interested in financing such initiatives.

● Advocating for public policies that include access to the technology infrastructure for vulnerable populations.

● Helping Member States review and strengthen related legal frameworks.

Martha Velandia, IM/FPL, PAHO/WHO, Washington, D.C.

Digital documentation
of COVID-19 certificates

Technical cooperation

Following WHO guidelines and in collaboration with the IDB, PAHO offers technical assistance to the countries of the Region in adopting the following technical guidance:

- *DDCC: Vaccination status: Guidance on digitally documenting COVID-19 vaccination status.*
- *DDCC: SARS-CoV-2 Test Result: Guidance on digitally documenting SARS-CoV-2 test results.*
- *DDCC: History of SARS-CoV-2 Infection: Guidance on digitally documenting history of SARS-CoV-2 infection.*

3   Connectathon

The Connectathon was held to demonstrate the feasibility of the countries' respective health systems cooperatively accessing, exchanging, integrating, and using COVID-19 data in a scalable process for the adoption of the WHO guidance and international interoperability standards. It was held in a structured setting with the participation of the countries, developers, and PAHO experts and colleagues from its regional and country offices, as well as the IDB, the National Center for Information Systems of Chile, HL7, and other international entities.

"The Connectathon is a technical milestone for the countries of the Region participating in the regional public good, since for the first time, a concept test related to cross-border interoperability in health was conducted."

Jennifer Nelson, Digital Health Specialist, IDB

The specific objectives of the survey were to:

- Create and issue digital COVID-19 certificates following the European Union standard (EU DCC).

- Validate the certificates issued in the country itself on a test platform.

- Verify the COVID-19 certificates issued by the participants in the different countries.

The countries participated through in-person and remote teams, and the event was broadcast live in English and Spanish. The event provided an opportunity for the countries to learn and assess their level of maturity for the introduction and implementation of digital COVID-19 certificates, their skills, and the basic instruments for guaranteeing the interoperability of their products, databases, and applications.

Compliance Levels for implementation of digital documentation of COVID-19 certificates.

The Connectathon enabled the participants to complete a technical process for issuing and valid COVID-19 certificates and validating them according to the EU DCC (European Union Digital Covid Certificate) standard. The results will be fed into a pilot project of WHO, the G20, and the Organisation for Economic Co-operation and Development (OECD).

Connectathon participants during the validation exercises.

Conclusions and next steps
- A common point of agreement has been reached and a path has been charted toward mutual technical understanding and the use of standards in health.

- It has been demonstrated that, in the Region, it is possible to interoperate reliably and securely based on standards.

- All the countries that participated in the event are technically qualified to formalize the equivalence of their COVID-19 vaccination certificates with those of the European Union and their adherence to WHO guidance, so they can begin the respective continuity process according to their level of implementation.

- The project will be continue to be scaled toward the use of integration standards and profiles for expanding use cases. These standards and profiles include the IPS (International Patient Summary) profile and the HL7 Fast Healthcare Interoperability Resources (FHIR), which had already been introduced in the countries participating in the regional public good before the Connectathon or that were introduced during it.

- Training on these standards will continue. The testing strategy will be developed jointly with IHE (Integrating the Healthcare Enterprise) and the technical committee, taking advantage of the platform and the integration profiles available on it.

- The need to train and position facilitators for this second project component will be studied.

4 Presentations on digital transformation

The following presentations were given as context for the discussions on the international technical guidance and policy papers approved by all PAHO Member States.

Opening presentation: Open public health in the age of digital interdependence
Sebastián García Saisó, Director, EIH, PAHO/WHO

"We need to make digital literacy programs part of national public health policies."

Sebastián García Saisó
Director, EIH

Highlights

Sebastián García Saisó, Director of the Department of Evidence and Intelligence for Health Action (EIH), PAHO/WHO, reminded the countries of the importance of the following issues and actions in the creation and implementation of public policies for positioning public health in the age of digital interdependence:

● Movement toward informed policies on open access to data, software, algorithms, literature, maps, dashboards, content, tools, etc.

● Consideration of connectivity and bandwidth issues as new social determinants of health.

● Avoidance of new forms of inequality that can generate digital divides.

● Updating of regulatory and legal instruments within the framework of digital transformation.

● Promotion of ongoing educational programs in digital literacy.

Technical presentation: The great opportunity offered by digital health for LAC: the IDB approach
Jennifer Nelson, Specialist, Health and Social Protection Division, IDB

Highlights

Jennifer Nelson, Digital Health Specialist in the IDB Health and Social Protection Division, presented the following ideas about the IDB's vision, findings, and recommendations for the Region:

● Digital technologies could lead to an annual saving of US$1.309 billion in the Region by reducing the repetition of diagnostic testing (laboratory and imaging), thanks to the sharing of health information.

● Digital health offers the potential to overcome the three major challenges that persist in Latin America and the Caribbean:

    1) the triple burden of disease, with NCDs predominating
    2) the low financial and fiscal sustainability of health expenditure
    3) the low quality and efficiency of services

● There is an urgent need to strengthen efforts in the following areas: informed health policy and practice; people and culture; digital applications and services in the sector; infostructure; infrastructure; and governance and management.

● Ensure the convergence of digital health initiatives with the IS4H (information systems for health) action framework promoted by PAHO.

Presentation: Roadmap for digital transformation of the health sector in the Americas
Marcelo D'Agostino, Senior Advisor, EIH, PAHO/WHO

Highlights

Marcelo D'Agostino, Senior Advisor of the Department of Evidence and Intelligence for Health Action (EIH), PAHO/WHO, underscored the importance of positioning public health in government digital transformation processes, emphasizing multisectorality as indispensable for the application of the eight guiding principles:

● Ensure universal connectivity in the health sector by 2030

● Co-create digital public health goods for a more equitable world

● Accelerate towards inclusive digital health, with emphasis on the most vulnerable

● Implement interoperable, open, and sustainable digital health and information systems

● Mainstream human rights in all areas of digital transformation in health

● Participate in global cooperation on artificial intelligence and emerging technologies
● Establish mechanisms for trust and information security in the digital environment of public health

● Design public healthcare architecture in the era of digital interdependence.

Presentation: The World Health Organization's Global Digital Health Strategy
Derrick Muneene, Unit Head, Capacity Building and Collaboration team, Digital Health and Innovation Department, WHO

Highlights

Derrick Muneene, WHO Unit Head, shared the progress that had been made in the WHO global digital health strategy, noting that:

● Full digital transformation requires the participation of all sectors of the population, working in coordination toward a common goal.

● To transform the current model of care, which is organization-centered, and adopt a people-centered model, the digital health ecosystem – that is, the necessary systems, capacities, and infrastructure – must be visualized and agreements must be reached among all relevant actors.

● It is important to ensure good governance to achieve the proper execution of digital health strategies at all levels and in all regions, emphasizing aspects that promote the sustainability and security of the digital transformation in health.

● Digital transformation in health must guarantee that no one is left behind, especially populations that lack connectivity.

Technical presentation: LACChain: technical demonstration
Marcos Allende, Specialist in applied technology and data science, IDB
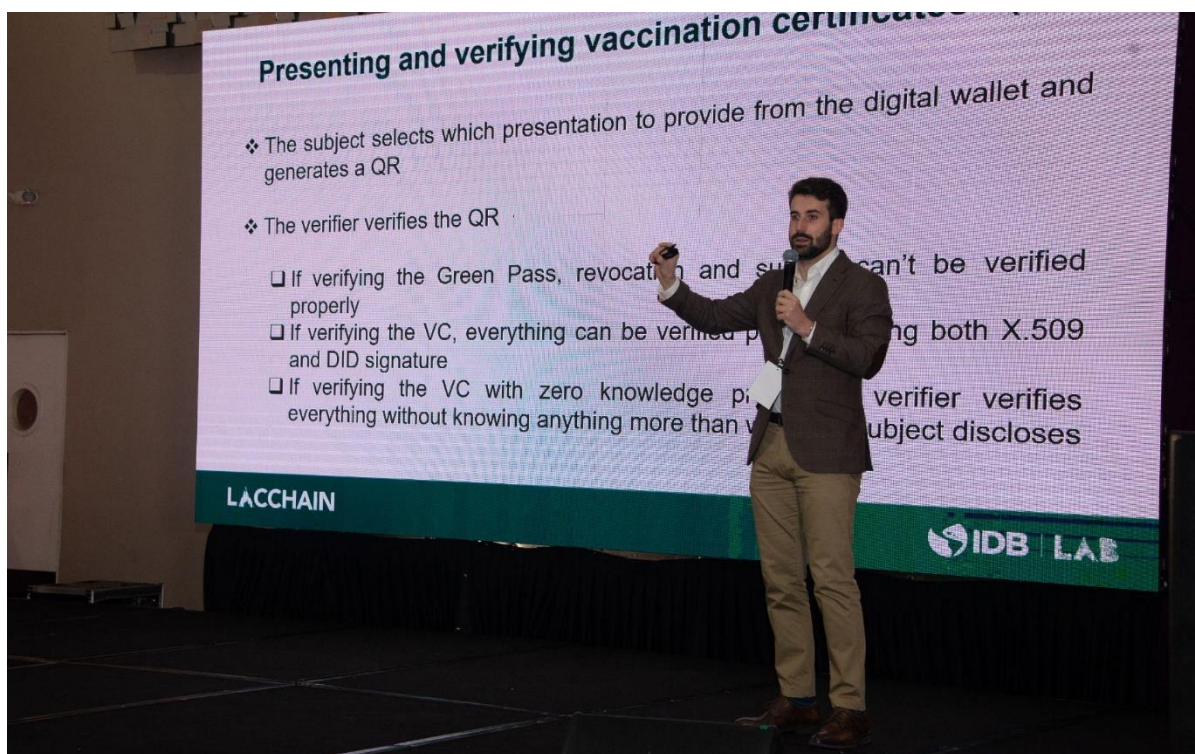
Highlights

Marcos Allende, IDB Specialist in applied technology and data science, gave a technical talk on LACChain. LACChain is a trust network developed with blockchain technology that allows for digital signature of COVID-19 vaccination certificates with full security guarantees, as it is:

- decentralized

- permissioned

- chronological

- unchangeable

- indelible

- consensual

Technical presentation: WHO technical guidance for digital documentation of COVID-19 certificates
Carl Leitner, WHO

Highlights

Carl Leitner, of WHO, discussed the technical guidance for digital documentation of COVID-19-related certificates, highlighting the two main application scenarios:

● Continuity of care. This is the main purpose of the vaccination certificate. People's individual's vaccination history is the cornerstone of their medical history from birth. Thus, the certificate attests to which vaccines a person has received, thereby facilitating informed decision-making about the provision of health services.

● Proof of vaccination: Vaccination certificates also attest to people's vaccination status for non-care purposes.

Technical presentation: Needs, opportunities, and challenges in the modernization of legal instruments to support the digital transformation of the health sector
Ignacio Ibarra, Office of the Legal Counsel, PAHO/WHO

"Without updated, modern, and nimble regulatory instruments, it will be very hard to advance digital transformation of the health sector"

Ignacio Ibarra, Legal Advisor, PAHO

Highlights

Ignacio Ibarra, PAHO/WHO Legal Advisor, accompanied by Marisa Aizenberg and Diego Mendi of the Digital Health Observatory of the University of Buenos Aires (UBA) School of Law, gave a presentation on developing legal standards in support of digital transformation processes in the health sector. The presenters also introduced the tool for measuring the maturity of legal frameworks for digital transformation, which can support the countries in their strengthening efforts and develop roadmaps supplemented with technical and legal cooperation. They noted the following:

● It is important to examine the regulatory capacity of the countries of the Region in terms of the eight principles for digital transformation of the health sector.

● The Region faces challenges in terms of updating, harmonizing, and strengthening its legal and regulatory frameworks to facilitate the implementation of strategies and public policies for digital transformation in the health sector.

● It is important to raise awareness about digital transformation in legislative health committees in order to ensure that these issues become part of the legislative agenda and activities (e.g., capacity for general public service oversight; review of public accounts; budgets; and social linkage with the populations represented.

Technical presentation: Validation of policy papers, lines of action, and indicators for implementation of the eight principles for the digital transformation of the health sector
Speakers: Analía López and Cintia Cejas, CIIPS-IECS, Argentina
Moderator: Marcelo D'Agostino, EIH, PAHO/WHO

The speakers presented the general results of collaboration between PAHO/WHO (EIH Department) and the Centro de Implementación e Innovación en Políticas de Salud (Center for Health Policy Implementation and Innovation - CIIPS) of the Instituto de Efectividad Clínica y Sanitaria – IECS) (Institute for Clinical and Health Effectiveness) of Argentina, in the production of policy papers and recommendations for action on PAHO's eight guiding principles for the digital transformation of the health sector.

Analía López CIIPS/IECS
Cintia Cejas, CIIPS/IECS

During this activity, the CIIPS representatives moderated the discussion on the lines of action and main indicators for each of the principles. The participants offered recommendations and comments.
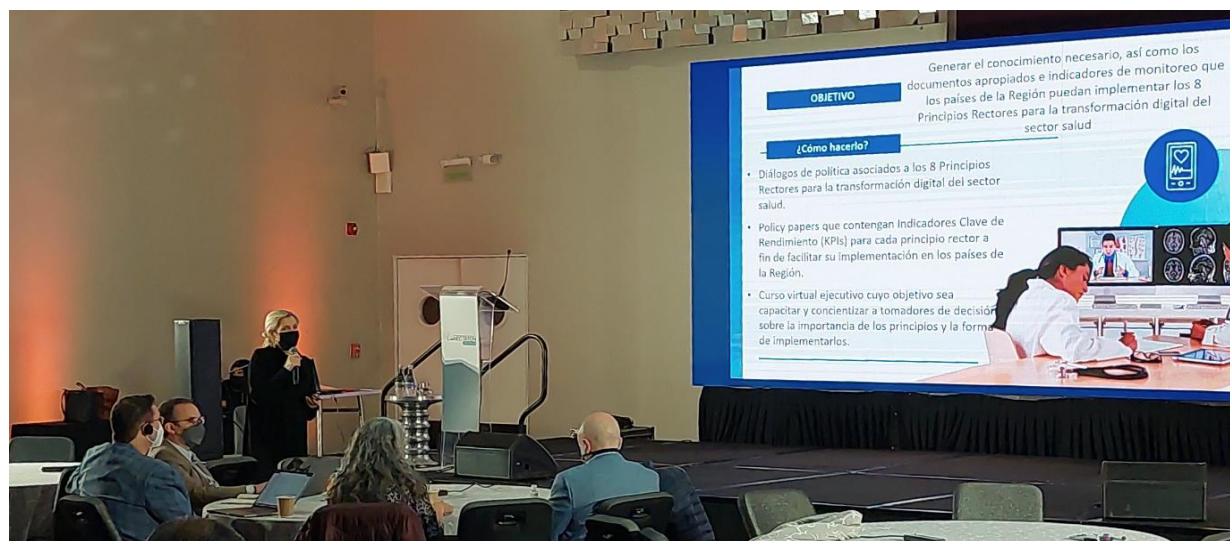
5 Bilateral and multilateral technical cooperation meetings

Bilateral meetings

During the event, several bilateral meetings were held between PAHO, the IDB, and officials from the participating governments, during which information was exchanged on the two projects (telehealth in NCDs and digital COVID-19 vaccination certificates) and their implementation in the countries. A strategic analysis of the technical cooperation activities necessary to strengthen digital transformation in each of the countries was conducted.

"We must advance the digital transformation of health in Chile in a multisectoral manner. PAHO is very committed!"

Fernando Leanes, PAHO Representative in Chile

Bilateral meeting between PAHO's EIH Department and the Government of Chile.

" PAHO/EIH is ready to continue supporting El Salvador in its progress toward digital transformation of the health sector"

Sebastián García Saisó, Director, EIH, PAHO/WHO

Bilateral meeting between PAHO's EIH Department and the Government of El Salvador.

"Dominica is fully committed to the roadmap for digital transformation of the health sector."

Jermaine Jewel Jean-Pierre, Dominica

Bilateral meeting between PAHO's EIH Department and the Government of Dominica.

"Chile has a tradition in the areas of e-health, digital health, and now digital transformation, and having a national digital health network is key to these processes."

Myrna Marti, Digital Health Advisor, EIH, PAHO/WHO

Bilateral meeting between PAHO's EIH Department and Chile's National Digital Health Network.

The participating countries agreed to make progress in the production of roadmaps for digital transformation of the health sector, as approved by the PAHO Member States at the 59th Directing Council of PAHO/WHO, 73rd session of the WHO Regional Committee for the Americas, in working document CD59/6, *Roadmap for the Digital Transformation of the Health Sector in the Region of the Americas*.

American Cooperation Network for Electronic Health (RACSEL). Parallel to the technical meeting, the regular meeting of the RACSEL general assembly was held. Agreement was reached to strengthen the network's efforts, formalizing the elements of governance for health interoperability in the Region, in alignment with PAHO's eight guiding principles. During the meeting, Colombia assumed the presidency of the network.
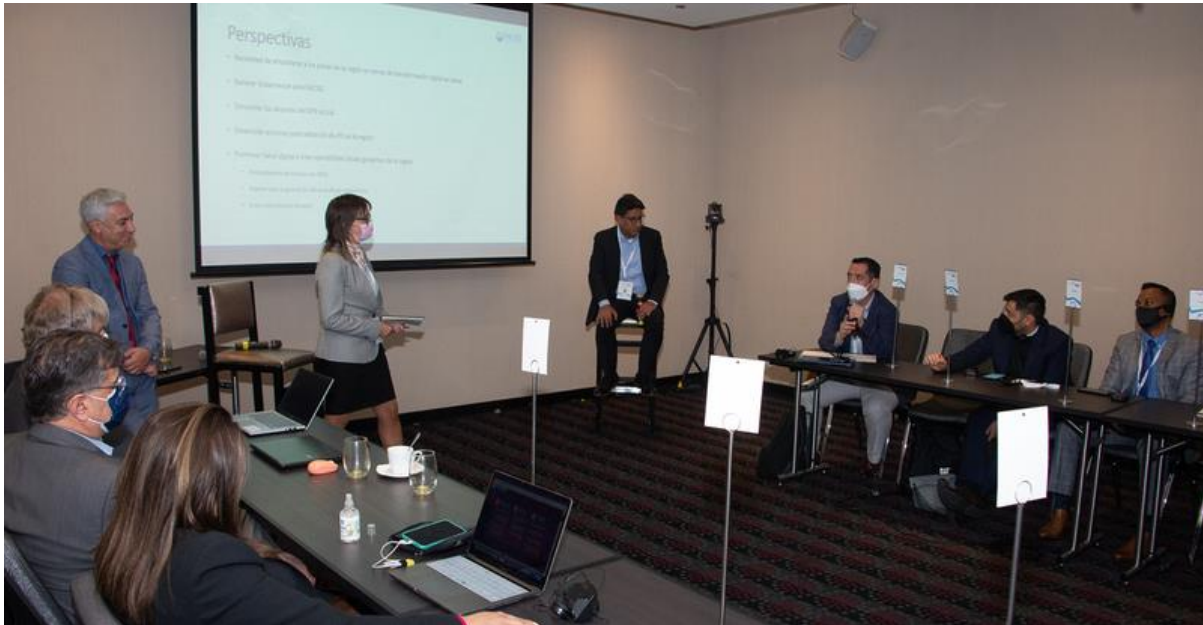
Regular meeting of the RACSEL general assembly.

This solidified a common point of understanding for furthering the Region's digital transformation strategy in health, despite the heterogeneity of RACSEL's member countries.

Regular meeting of the RACSEL general assembly.

Conclusions and recommendations

Conclusions
- The participating countries, as well as all PAHO Member States, officially agreed to make progress toward implementation of a roadmap for digital transformation of the health sector.

- The COVID-19 pandemic has shown that digital health is a critical factor for success in modernizing models of care and fostering government transparency.

- While information and communication technologies can help to increase access to health services, they can also exclude population groups in situations of vulnerability – mainly those who lack connectivity or have limited digital literacy.

- The participating countries have made an unequivocal commitment and excellent progress in the "Telehealth in combatting NCDs" and "Digital documentation of COVID-19 certificates" initiatives.

"The Region of the Americas is committed at the highest level to digital transformation of the health sector and is firmly and sustainably advancing to make digital health and information systems key pieces of more resilient health systems."

Sebastián García Saisó, Director, EIH, PAHO/WHO

Recommendations
- Consolidate the significant progress that the countries have made in information systems and digital transformation, identifying and sharing their best practices and lessons learned.

- Review, strengthen, and implement revamped regulatory frameworks, public policies, and governance mechanisms that, in keeping with the principles of equity and solidarity, facilitate the application and co-creation of digital public goods, adoption of standards, and reengineering of processes, as well as the reworking or production of regulations and legal instruments as enabling and facilitating agents of the digital transformation of the health sector.

- Make progress toward the development of specific roadmaps for consolidating the projects discussed at the "Telehealth in combatting NCDs" and "Digital Documentation of COVID-19 certificates" event.

- Complement professional training with ongoing digital literacy programs in the health sector.

Call to action

CONSIDERING

That all PAHO Member States committed themselves at the 59th PAHO/WHO Directing Council, 73rd session of the WHO Regional Committee for the Americas, to implement policy document CD59/6, Roadmap for digital transformation of the health sector in the Region of the Americas;

That the participating countries reaffirmed their vision that digital transformation is an irreversible reality and that its benefits must cease to be the domain of a few and become a right for all;

The PAN AMERICAN HEALTH ORGANIZATION urges Member States and all institutions and workers in the health sector to strengthen their actions along the following strategic lines:

- ❖ Work together so that the digital transformation drives us to achieve the 2030 Agenda.

- ❖ Coordinate actions related to technical and legal decisions that leave no one behind.

- ❖ Motivate supranational cooperation so that the necessary knowledge flows, at the right time and in the necessary format.

- ❖ Incorporate digital literacy as a public policy from the early stages of education.

- ❖ Strengthen foundational foundations and governance mechanisms so that investments and actions are cost-effective, informed, and sustainable.

- ❖ Guarantee that all digital transformation actions consider the principles and ethical foundations of inclusion and human rights. These principles should inspire the legal and regulatory frameworks with which these actions are institutionalized.

Annexes

Annex 1. Concept Note: All-in-One Telehealth Platform for NCDs

Noncommunicable diseases (NCDs) are the leading cause of death and disability in the world. Effective management of these chronic conditions largely depends on the continuity of responsive and accessible quality services, as well as patient involvement and self-care. Telehealth has proven advantageous in ensuring the continuity of care, especially when there are disruptions in services or problems with access, and in facilitating the monitoring and evaluation of NCD interventions.

The main function of digital health is to maintain the continuity of health services, in addition to serving as a platform for improving communication between professionals and patients and the continuity of care for people with NCDs. Effective health service monitoring and delivery through digital solutions has a positive impact on the quality of life of patients with chronic diseases. Digital solutions promote greater independence and self-care and reinforce adherence to therapy.

Digital solutions have demonstrated great potential for complementing in-person consultations for NCD management, from every perspective: patients, caregivers, professionals, and health organizations. These solutions can be tailored to a particular disease or designed to use various technologies in people-centered care synchronously, targeting different audiences to meet patients' multiple health needs. This depends on the initial objectives, proposed scope, available infrastructure, and clients' ability to use it, as well as the potential for scaling up.

Within the framework of the Roadmap for the Digital Transformation of the Health Sector in the Region of the Americas, approved by the Member States at the 59th Directing Council of PAHO, and with the contribution of the United States of America, intensive work has begun to launch an all-in-one telehealth platform for NCDs as a regional public good available to every country in the Region. This platform and the associated technical documentation will be based on international interoperability standards and can cover different scenarios in combatting NCDs.

Scope

This telehealth project for NCDs will, among other things, complement in-person consultations from the different perspectives of patients, caregivers, professionals, and health organizations.

The design of the all-in-one telehealth platform for NCDs can be tailored to specific diseases and used synchronously with other technologies in people-centered care to cover multiple health needs and different audiences. This model will be facilitated by digital solutions that will promote continuity in follow-up and the quality of care provided to people with NCDs.

In this case, it is a platform that integrates applications such as instant messaging in different formats, chatbots, shift management systems, patient medical records, digital prescriptions, etc.

Results and benefits for the countries

- Uninterrupted operations and the accessibility of health services during health emergencies, particularly in situations of social confinement.

- Greater continuity of care for people with NCDs, thanks to online communication with professionals.

- Surveillance systems and health service delivery with a positive impact on the quality of life of people who need care for NCDs.

- Greater independence, self-care, and adherence to therapy by people with NCDs.

- Health emergency response for:

  o Telecare to assist self-care of people with NCDs

    ▪ Health promotion: Use recommended digital interventions to monitor and promote healthy lifestyles and provide counseling.

    ▪ Peer support: Promote healthy online communities and secure digital spaces for support and guidance; promote physical activity and healthy eating.

    ▪ Disease management for users and health workers: Help people with diabetes and hypertension manage and control their disease, and offer help to quit smoking and treat alcohol dependence. For health workers, adopt "advance triage" to refer people to appropriate services before they go to the health center.

    ▪ Remote monitoring: Evaluate the use of portable medical devices that collect data and monitor changes, alerting health workers automatically when values exceed certain thresholds.

    ▪ Involvement in treatment and the promotion of self-care: Virtual education (content, videos), automated monitoring, and reminders.

  o Telemedia for use by professionals and caregivers

    ▪ Prevention: Educate the public about healthy habits and risk factors through social media campaigns. Create shareable content.

    ▪ Health care delivery: Offer online consultations to resolve health problems; communicate with pharmacies; and renew prescriptions (digital signature and validation or consultations about coverage).

    ▪ Training in maternal and child health and reproductive health: Create sharable audiovisual content – for example, on the benefits of breastfeeding and breastfeeding techniques.

    ▪ Pharmaceutical supply chain and anti-falsification efforts: Control stocks of essential medicines and prevent shortages; raise awareness about dangers and offer guidance to users; work with major distributors to develop guidelines to reduce the number of places where counterfeit drugs are sold.

    ▪ Digital data tracker: Promote the systematic collection and use of user data, as well as interoperability, in order to reduce manual data entry and facilitate efficient user flows to different health service providers.

    ▪ Identify and help families: Digital contact tracing and automatic alerts about contact risks. Include emergency information about contact on digital user registries.

- Treatment: Adopt teleconsultations and guide patients in performing basic self-examinations to improve telediagnosis; advise them on necessary changes to the treatment plan; institute mechanisms for electronic prescriptions, especially for repeat prescriptions and as an alternative to in-person pick-up.

Critical factors for success

1) Identify the entity or team responsible for telehealth at the national level.

2) Identify the institutions that will be involved in implementing the initiative.

3) Create a multidisciplinary project team composed of experts from national institutions, PAHO, and any other partners that each country deems relevant.

4) Achieve active participation in technical activities and decision-making throughout the project.

Annex 2. Concept note: Digital documentation of COVID-19 certificates

The countries are currently using paper-based systems to monitor health records, including the results of vaccination trials and COVID-19 tests. Digitalized vaccination and test certificates were among the innovations that arose from the need for digital processes during the pandemic. These certificates enable countries to digitally document COVID-19 status. This process and technology infrastructure will be used to extend the use of digital certificates to other public health activities.

Following WHO guidelines, PAHO offers technical cooperation to the countries of the Region for the adoption of the following technical guidelines:

- *DDCC: Vaccination status: Guidance on Digitally Documenting COVID-19 Vaccination.*
- *DDCC: SARS-CoV-2 Test Results: Guidance on Digitally Documenting SARS-CoV-2 Test Results.*
- *DDCC: History of SARS-CoV-2 Infection: Guidance on Digitally Documenting History of SARS-CoV-2 Infection.*

Within the framework of the *Roadmap for the Digital Transformation of the Health Sector,* approved by Member States at the 59th PAHO Directing Council, and with the contribution of the United States of America, intensive work has begun that will enable countries to implement an interoperable cyber-secure vaccination certificate that documents a person's immunization status, either as protection against COVID-19, a guarantee of continuity of care, or verification for other purposes. Digital vaccination certificates are electronic vaccination records that can be consulted by both the vaccinated person and authorized health personnel and used in the same way as a paper card.

PAHO, in collaboration with the IDB, has created a project team devoted full-time to addressing country-specific needs and accelerating adoption of WHO technical guidance. This cooperation is part of the Regional Public Goods Initiative (RPG), in which nine countries from the Region are currently participating. The project team also includes technical staff from the WHO Digital Health Department and collaborating centers, as well as international experts.

Scope

This project covers the following scenarios:

a. **Continuity of care:** This is the main purpose of the vaccination certificate. Vaccination history is the cornerstone of an individual's medical history from birth. Accordingly, the certificate attests to which vaccines the person has received and thus facilitates informed decision-making about the provision of health services.

   Potential benefits:

   ➢ Provides a platform for health workers to offer a subsequent dose and/or appropriate health service
   ➢ Provides information on the vaccination schedule so that people know whether they need another dose, of which vaccine, and when to receive it.
   ➢ Enables health workers to investigate adverse events, based on existing guidance on adverse events following immunization.

b. **Proof of vaccination:** The vaccination certificate also attests to a person's vaccination status for non-care purposes.

Potential benefits:

➢ Demonstrates the vaccination status of individuals in coverage surveys
➢ Demonstrates vaccination status after a positive COVID-19 test to determine the effectiveness of the vaccine
➢ Staffing purposes
➢ Admission to a daycare center or educational institution
➢ Other

Results and benefits for the countries

- Links people to COVID-19 test results and their vaccination status through national health programs.

- Data accessible from various platforms in public health systems.

- Management of health problems stemming from people's movement between regions.

- Continuity of vaccination schedules for migrant populations under a country's vaccination program.

- Improvements in the quality, safety, and stability of national health registries.

- Improvements in the ability to set up and manage national digital certificate systems.

- Elimination of the risks associated with paper-based systems, namely:

  – Loss of information due to deterioration of paper
  – Deception and fraud; digital certificates offer greater security (considering physical damage to the card or loss of information due to improper handling)
  – Protection and privacy of health-related data.

Critical factors for success

1) Identify the entity or team responsible for the initiative at the national level.

2) Create a multidisciplinary project team comprised of experts from national institutions, PAHO, the IDB, and any other partners that each country deems relevant.

3) Achieve active participation in technical activities and decision-making throughout the project, as well as in virtual or in-person coordination meetings.
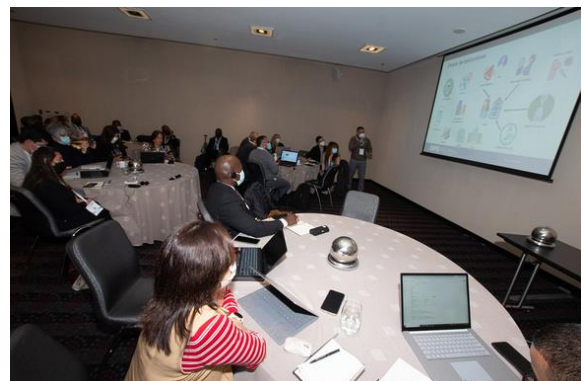
Annex 3. Photos of the event

Annex 4. Care and prevention measures

In preparation for the event, as well as during and afterward, PAHO strictly enforced prevention measures to ensure that all participants enjoyed a safe and seamless meeting. Emphasis was also placed on scrupulous respect for the measures established by the host country, Chile. Below is the fact sheet that was sent to all participants. In addition, diagnostic tests were performed at the beginning of the event and during the week.

Fact sheet on **COVID-19 health measures** and other important topics

On the date this fact sheet was sent, Santiago, Chile had been in the **"medium health impact"** stage since Thursday, 12 May at 5:00 am

Source: Gob.cl - Paso a Paso (www.gob.cl)

Important: *Since public health measures may change, we recommend that you frequently consult the following website of the Government of Chile, which contains official updated information: https://www.gob.cl/pasoapaso*

Dear Participant,

Please read the **prerequisites and country entry requirements** carefully and verify your compliance in a timely manner. Remember that it is your responsibility to follow all prevention measures during your stay in Chile. Also, don't forget to check the travel requirements of your transit countries.

Validation of COVID-19 vaccines (mobility pass)

− All participants must have received a complete vaccination series and certify this on the form for the mobility pass.[2] The mobility pass is a digital certificate that indicates which vaccines you received and allows you to enter any enclosed establishment and attend mass events in all phases.

− Click here to get your **mobility pass:** MeVacuno

− Instructions for obtaining your mobility pass: MANUAL_MEVACUNO.CL_final.pdf

− The process can take anywhere from 24 hours to 10 days, but the national authorities will be supporting us with an expeditious review of the procedure.

− You are not required to have completed this procedure to enter the country or to sign an affidavit (see below).

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[2] According to the national regulations of your country of origin and the type of vaccine (single dose or two doses). If boosters are being administered in your country, provide this information as well.

Traveler's affidavit (within 48 hours before travel)

– All foreigners entering the country must complete the traveler's affidavit (to obtain the international health passport, PSI, or C19) within 48 hours of boarding. Once completed, you will receive an e-mail with the voucher and a QR code.

– Click here to complete the Traveler's Affidavit: https://www.c19.cl

Health insurance

– All non-resident foreigners must have at least US$30,000 in **health insurance** with COVID-19 coverage. The cost of the insurance is borne by the traveler.

Rapid diagnostic test for COVID-19

– While not a requirement, **it is advisable to have the results of a PCR test taken within 48 hours of boarding.** If you opt to take the test, send the results, before traveling, to PAHO/WHO to: caracogm@paho.org

– At the point of entry to Chile, **random diagnostic tests will be performed**. Confirmed cases must be isolated pursuant to the general regulations (address declared in C19 or health residence).

– The organizers will provide all participants with access to antigen diagnostic tests prior to the meeting. Arrangements will also be made during the meeting if PCR tests are required for people who experience symptoms or are close contacts.

Masks

– Masks are still mandatory in enclosed spaces and in open spaces where it is impossible to maintain one meter of distance. Review the details and recommendations for proper use of this layer of protection in each phase of the "We continue to take care of each other, step by step" plan: https://www.gob.cl/pasoapaso.

Immigration form

– When entering the country, **request and retain the immigration form** issued by the International Police. This document will be required for VAT exemption in hotels. To obtain it, you must not hold Chilean citizenship, must pay in foreign currency, and must have the immigration form. Without this form, you will have to pay the tax.