Digital Transformation of the Health Sector in Latin America and the Caribbean

Electronic Health Records

Social Protection and Health Division
Regional Policy Dialogue Report

Washington, DC, United States

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Executive Summary

Digital transformation improves quality and efficiency of healthcare through the collection of information and its suitable use in decision-making at all levels of the health system.

Many countries in Latin America have a unique opportunity to begin or renew this process of a digital transformation through the implementation of electronic health records (EHR).

Different definitions have been used to describe EHRs (Evans, 2016). One of the most recognized definitions is provided by the Healthcare Information and Management Systems Society (HIMSS, 2018): "*The EHR is a longitudinal electronic record of patient health information generated by one or more encounters in any care delivery setting. Included in this information are patient demographics, progress notes, problems, medications, vital signs, past medical history, immunizations, laboratory data, and radiology reports".* In their seminal book, Nelson & Staggers (2016) complemented the HIMSS definition by describing EHR as *"an electronic record of health-related information of an individual that conforms to nationally recognized interoperability standards and that can be created, managed, and consulted by authorized clinicians and staff across more than one healthcare organization*". Putting together these two definitions, it is possible to identify some of the critical features of an EHR system: a) its longitudinal form, which allows it to record health-related information of individuals over time from various information systems; b) its interoperability with various systems though the adoption of recognized standards, which refers not only to the possibility of exchanging health information but also to the ability of using the information that has been exchanged (Geraci et al., 1991); and c) the involvement of different healthcare organizations and levels of care in the information exchange and use processes. Note that implementing an EHR system goes beyond implementing an electronic medical record system (EMR), which is the electronic version of the traditional records internally used by healthcare organizations. In contrast, an EHR system must be able to perform eight core functions[1] to promote greater safety, quality, and efficiency of patient care (Tang, 2003).

Hosted by the Inter-American Development Bank, (IDB), the Regional Policy Dialogue (RPD) in 2018 sought to work with regional allies and experts from around the world to share lessons learned and success stories in EHR implementation and digital health transformation. Topics included governance, interoperability, change management, and intra-regional collaborative networks. The RPD of the Social Protection and Health (SPH) Division for 2018 created a space for reflection on public policies, exchange of experiences, lessons learned and dissemination of knowledge on priority issues for countries in Latin America and the Caribbean (LAC).

The RPD event was held in Washington, D.C. on October 9th and 10th, 2018 and included 31 external participants, including vice ministers, senior medical officers, directors of health informatics, and permanent secretaries. The invited participants represented 18 member countries: Argentina, Barbados, Brazil, Colombia, Dominican Republic, Ecuador, El Salvador, Guatemala, Guyana, Honduras, Jamaica, Mexico, Panama, Paraguay, Peru, Suriname, Trinidad and Tobago and Uruguay.

The event also featured high-level speakers on digital transformation from around the world, including Estonia, Canada, Brazil, Spain, Uruguay, Colombia, South Korea and China. These speakers were from universities, hospitals, technology start-ups, private companies, international non-governmental organizations, and government agencies.

By the end of the workshop, participants had reviewed examples of national EHR systems from Estonia and Canada, learned about governance frameworks, discussed interoperability, and heard from start-ups using artificial intelligence in clinical decision support systems. They also received an overview of necessary connectivity and hardware, discussed best practices in leading behavior change through digital transformations, reviewed maturity model assessments, and discussed

intraregional examples from Asia and Latin America. As for next steps, participants committed to socialize what they had learned with the ministries where they work. They also expressed interest in continuing and expanding work at the regional level, such as through RACSEL and an intraregional network among Caribbean countries; creating a governance framework for digital health transformation; and establishing digital transformation strategies and budgets at the national level.

1. Eight criteria defined by the Institute of Medicine for EHR Systems: Storage and retrieval of health information and data; Results management; Order entry/management; Decision support management; Electronic communication and connectivity; Patient support; Administrative processes; Reporting & population health

Regional Policy Dialogue Overview

This event reviewed key elements that member countries should take into consideration when planning a digital transformation of the health sector. A brief overview of the agenda can be found below.

TUESDAY, OCTOBER 9TH

Opening of the Regional Health Policy Dialogue 2018

Session 1: The Route to Electronic Health Records

Session 2: Governance, The Foundation for Electronic Health Records

Session 3: Interoperability: Speaking the Same Language

Session 4: Leveraging Technology: The Use of Artificial Intelligence in Clinical Decision Support Systems

WEDNESDAY, OCTOBER 10TH

Session 5: Access and Information: How to Overcome Connectivity and Hardware Barriers

Session 6: Leading Change for Digital ransformation

Session 7: Diagnostics: How Ready is My Country for Digital Transformation?

Session 8: Opportunities and Efforts toward Intraregional Collaboration

A complete version of the agenda can be found in Annex A.

Throughout the Regional Policy Dialogue, the following graphic was used as a reference point that depicted each of the agenda sessions:

FIGURE 1: A representation of the digital transformation ecosystem

The Regional Policy Dialogue website (available in English and Spanish) contains the links to download the presentations, as well as information on each of the speakers, photos, and videos from the event.

Introduction

The Regional Policy Dialogue began with a welcome message from Marcelo Cabrol, Social Sector Chief, and Ferdinando Regalia, Social Protection and Health Division Chief from the Inter-American Development Bank. Their addresses were then followed by a keynote address from David Eaves.

KEYNOTE ADDRESS

David Eaves
Public policy entrepreneur and expert in information technology for governments, Harvard Kennedy School.

In his presentation, Eaves provided the meeting participants with a basic introduction into digital transformation in the health sector. He highlighted three myths that many countries believe when beginning a digital transformation of their health sector. **The three myths are as follows:**

Myth #1: The best solution is always one national EHR system

Eaves stated that in his research, he has not seen a country successfully construct a national EHR system (where all providers adopt the same system), with the exception of Estonia. Digital transformation projects fail frequently. In fact, only 9% of large IT projects in the private sector were successful (Standish Group, 2014). Eaves argued that a country's ecosystem and national standards must allow the development of platforms, on top of which individual information systems can be built and talk to each other.

Myth #2: Coding skills are your most important asset

Coding is an important skill, but it is not the only one. The most important skillset is understanding the needs of the people you are trying to serve. We, meaning the policy makers and program implementers, are not the end users. Engaging users, such as providers and patients, might require having to confront failure or face suboptimal outcomes. The most important skill is empathy.

Myth #3: Open source will make it free

Open source does not translate to free labor. Free labor for coding and the creation of digital health systems is unsustainable. If a system is free, it's often challenging to define who is held accountable when the system doesn't work.

Eaves suggested the following recommendations to the participants:

1. You need digital infrastructure before creating an EHR.

Countries need to build a core digital infrastructure, which includes components such as national identification and payment systems. There should be a consistent form of payment across ministries/sectors as well as a standardization of forms. Terminology in forms, standards, and systems should be consistent. By following these guidelines, governments can adapt a system for the health sector much more easily. However, negotiating these reforms can be challenging. It's important to plan digital infrastructure ahead of time to serve multiple functions.

2. Start small and experiment

Eaves discussed an example from the United States Digital Service, which worked with the U.S. Department of Education to create an app to help high school students find colleges. Since they didn't know what tools students currently use to look for colleges, they decided to create their own paper prototypes to simulate how the students would interact with an app. They went to a high school with this basic paper prototype. Once they received feedback from students, they created another prototype within hours. The following day, they returned to the students to solicit feedback on the improved version. By prototyping and starting small, they were able to get feedback much more quickly on their systems than if they had built the entire app before asking for comments. Similarly, when building

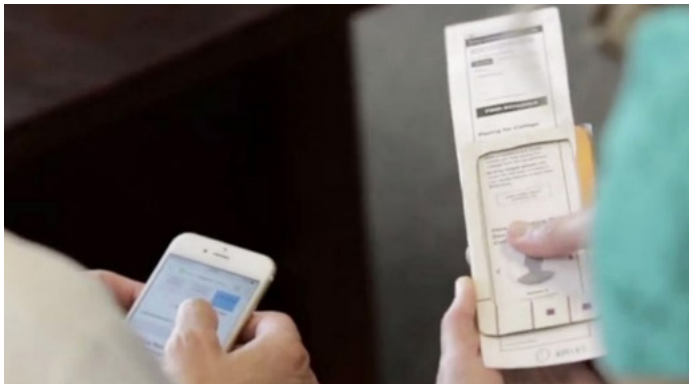

FIGURE 2: Example of quick prototyping, Eaves 2018

electronic health records, we must find ways to prototype frequently and experiment.

3. Focus on standards

Eaves then reviewed the importance of focusing on standards before undergoing a digital transformation. He strongly recommends that countries adopt a national ID for each citizen. Another option he recommends is biometric identification systems.

Session 1: The Route to Electronic Health Records

Overview: Although the countries of the region have made slow progress in the implementation of electronic health records (EHR), there are international examples that can be useful to answer certain questions:

- What are the most important elements to implement EHR?
- What are the experiences of countries that implemented EHR successfully?
- Which of these elements are applicable to our region?

Presentation: Estonia's Path to EHR

Peeter Ross, MD, Ph.D.
Professor of eHealth at the Tallinn University of Technology, Estonia

This presentation discussed the Estonian EHR system, which is unique because it is nationwide. Their comprehensive EHR system utilizes a standards-based IT infrastructure that registers all residents from the cradle to the grave.

Several factors made Estonia a conducive environment for a digital transformation of their health sector. For example, before the country implemented a nationwide EHR system, every citizen had an identification number that was assigned to them at birth. Estonia utilizes a compulsory solidarity-based health insurance model for its national health care system. Furthermore, there is relatively good internet connection throughout the country, and citizens are accustomed to a mature ecosystem of e-services. For example, a third of the population votes online, and students can view school progress reports through the web. Given citizens' positive attitude toward e-services, they were relatively receptive toward an EHR system.

Between 1990-2000 there was only occasional use of electronic medical records (EMR) in the country. However, in the early 2000s, the government began planning to complete a nationwide EHR system by 2010. In 2005, all reimbursement claims and prescription data were available electronically. From 2008-2009, the government gradually integrated hospital and general practitioner information systems into the EHR system. In total, the entire timeline to build the complete EHR system took about 15 years.

Today, the system is centralized, and all providers send their information to a central database. Every person in Estonia has a personal account in a patient portal, where they can review their healthcare data and insurance expenses, as well as resources such as medical laws.

The main drivers of the EHR system's implementation included the clear governance of Estonian e-health services by the Estonia Health and Welfare Center, legal clarity, an existing e-services infrastructure, pre-established online identification numbers for each citizen, agreement on access rights, and standardization.

Presentation: Canada's Path to EHR

Jennifer Zelmer, Ph.D.
President of the Azimuth Health Group

This presentation discussed Canada's experience in implementing their EHR system. Canada's development of EHRs was conducted in a series of stages. They first implemented electronic payments for health services as the basis for their system.

Afterwards, they connected point-of-care solutions, developed interoperable EHRs, and disseminated information for policy, management, and public awareness. Then Canada integrated client and provider demographics, diagnostic imaging, medications, test results, clinical reports, telehealth, point of care solutions, and consumer health solutions.

Planning and implementing their EHR system involved the following:

- Institutional arrangements and governance
- Connectivity and other building blocks
- Building consensus on architecture, standards, and interoperability

- Public and stakeholder engagement
- Change management best practices
- Cooperation across jurisdictional boundaries

Evidence shows an increased use of EMRs/EHRs by primary care physicians from 16% in 2004 to 85% in 2017. The system has also led to increased access of health information and productivity. Currently, EHRs outperform paper records for preventive or follow-up care. In fact, one study found that medical practices that used EHRs identified patients who needed additional care 29 times more quickly than practices that used paper-based methods.

In conclusion, Zelmer recommends the following actions for countries undergoing a digital transformation:

- Achieve consensus on priorities for collective action
- Consider appropriate institutional mechanisms and governance
- Use flexible approaches to achieve common goals
- Evaluate value and readiness (e.g. connectivity) of EHR systems across jurisdictions
- Achieve collaboration, cooperation, and information exchange in the short-term
- Engage a broad range of stakeholders to facilitate change
- Recognize that achieving tangible progress on health reform outcomes can take longer than expected and is not guaranteed
- Establish mechanisms to incent progress to achieve shared goals

Session 2: Governance, the Foundation for Electronic Health Records

Overview: One of the first elements of EHR implementation is the development of appropriate regulations that align relevant actors and facilitate the generation and flow of information in the system.

Presentation: Governance of Health Information Systems in Latin America and the Caribbean
Javier Carnicero
Head of the Contracting of Health Services Unit, Health Service of Navarra (Spain)

In this presentation, Carnicero defined governance as the exercise of political, administrative and technical authority for managing a Health Information System (HIS) at all levels of a national health system. The governance structure consists of the mechanisms, processes, and institutions through which all stakeholders articulate their interests, exercise their rights, fulfill their obligations, resolve their differences and supervise the operation of the HIS.

There are several premises that should be in place when creating a national EHR system. First, the government should have a digital strategy in place, as well as sufficient budget and internet connectivity. The digital strategy is fundamental to the success of a country-wide EHR system. The Ministry of Health (MOH) must have a national health strategy, as well as a strategy that focuses on digital health and EHRs. Everyone's participation is essential to the functioning of the system and its expansion. This information is important for the decision-making process and data ownership.

Carnicero's conclusions and recommendations included the following:

- The EHR must be a key part of the overall health strategy
- Available budgetary resources must be set aside
- Without the right staff, success is impossible
- Appropriate legislation can facilitate EHR creation and adoption

Presentation: Governance and the Use of Health Information Systems: The Experience of Brazil
Heimar F. Marin, Ph.D.
Professor of Health Informatics, Federal University of Sao Paulo, Brazil

This presentation reviewed Brazil's experience of creating its EHR system. In reflecting on Brazil's fragmented EHR systems, Marin stated, "The problems we have today are the consequence of yesterday's decisions."

Marin defined governance as systematically determining who makes each type of decision, who has input to a decision, and how these people or groups are held accountable for their role. Without a strong governance structure, healthcare IT systems can result in late, over-budget projects that culminate in disparate systems that cannot exchange information with each other.

Agencies working in healthcare IT governance must be agnostic from the political process. Building EHR systems takes much longer than any typical election cycle. Estonia, for example, took 10 to 15 years, while the Hospital Italiano in Argentina took 21 years.

Marin explained Brazil's public healthcare system, known as SUS. The multiple DATASUS systems, or EHR systems used by SUS, were developed according to national needs. Rather than building one unified system, Brazil built systems as they were needed. That fragmented strategy led to DATASUS developing over 600 parallel EHR systems. Different medical needs, such as vaccines or yellow fever treatment, required physicians to use different systems.

The E-Health Strategy Steering Committee, which is the highest level of e-health management in Brazil, is now working to actively consolidate those systems. In 2014, the government built a BUS Service that enables interoperability between all these systems between both the public and private healthcare sectors.

Session 2: Governance, the Foundation for Electronic Health Records

The E-Health Strategy Steering Committee also developed a national Digital Health Strategy by utilizing WHO's National E-Health Strategy Toolkit.

In summary, Brazil continues to consolidate its EHR systems; this transformation has taken years and is still in progress. However, Marin recommended that countries strategically plan their e-health strategy to build one consolidated system that serves multiple needs, rather than having to retroactively fix problems in the future.

She ended with the following quotation from Clarice Lispector, "*Change, but start slowly because the direction is more important than the speed.*"

Session 3: Interoperability: Speaking the Same Language

Overview: Continuity of care requires quality data throughout all interactions with the patient. For this reason, it's critical to have quality data that can be shared with various parts of the health system. The only way to ensure this quality across all environments is through three elements: standards, interoperability, and architecture. In this session the following questions were discussed:

- I want my silos to communicate: how do I achieve interoperability of my systems?
- What are the elements necessary for information systems to talk to each other?
- What actions should be taken to enable communication within health information systems?

Presentation: The Importance of International Standards and their Worldwide Implementation
William Hammond, Ph.D.
Director, Duke Center for Health Informatics

Interoperability is defined as the ability to exchange data without error, to interpret the data, and to make effective use of the exchanged data. Most of the new initiatives in health care require the sharing of data. These data exchanges can occur within organizational, enterprise, regional, national, and country levels. Some examples of interoperability include semantic, consumer, functional, and international interoperability.

We need to speak the same language and avoid ambiguity in data. The effective use of data also requires trust in the quality and completeness of the data. The problem is that there is no global, national, regional, and even institutional common set of data representation. Furthermore, new kinds of data are emerging, including clinical, environmental, socioeconomic, genomic, and behavioral data.

Hammond detailed the following reasons why interoperability is critical:

- Continuity of care requires that all data about the patient is aggregated into an integrated set.
- Registries enable us to focus on specific problems and issues with increased clarity.
- Analytics enable us to identify problems, issues, and costs and provide a means to understand and address these concerns.

Semantic Interoperability
Consumer Interoperability
Communications, networking Interoperability
Functional Interoperability
Business Interoperability
International Interoperability
Stakeholder Interoperability
Security/Privacy Interoperability
Legal, ethical, societal Interoperability

FIGURE 3: Types of Interoperability, Hammond 2018

Hammond explained that we need to extract the data we want from the EHR and "package" it in a way the receiver can understand and use. Additionally, we need to use the data in an effective way that creates value and supports models for exchange.

One way to do so is through Fast Healthcare Interoperability Resources (FHIR), a standard for packaging and moving data in a secure and interoperable manner. Hammond detailed that FHIR was faster to learn, develop, and implement than other methodologies. FHIR is supported by large implementation libraries, developed and implemented around the world, and readily integrates with existing standards. SMART® is an app creator that integrates with FHIR and enables vendors to create apps that seamlessly and securely run across healthcare systems.

Patients, clinicians, and others can draw on a library of apps to improve clinical care, research, and

Session 3: Interoperability: Speaking the Same Language

INTER-OPERABILITY

public health. One of the keys behind sustainability of using these tools to advance a digital health transformation is support from the government, citizens, community, and related industries. Creating digital systems within the public, especially in health, requires workforce development and capacity building, as well as special attention towards issues of privacy and cybersecurity.

Hammond provided the following recommendations for the LAC context:

- Adopt a common unique personal identifier across LAC
- Create/adopt a common set of data elements across LAC
- Prioritize patient-centric electronic health record systems as a centerpiece of health information technology in each country
- Address privacy and security concerns
- Adopt a common formulary
- Enable mobility of data across countries

Presentation: Architecture and Interoperability, and the Experience of the Connectathon
Carlos Alba
Director of Strategic Planning at the Agency for Electronic Government and the Information and Knowledge Society (AGESIC) of Uruguay

During this presentation, Alba presented Uruguay as an example of digital transformation. Uruguay is part of the Digital 7, making it one of the most digitally advanced countries in the world. The country has a countrywide commitment towards digital transformation, as defined in its national digital government strategy. Health is one of the key areas of the digital government strategy. The National EHR system contributes to the objective of innovation for social good, part of improving social inclusion.

The Agency for Electronic Government and the Information and Knowledge Society (AGESIC) promotes and leads Uruguay's digital strategy. One of its programs is Salud.uy, which supports the Integrated National Health System (SNIS) to improve the quality of health services through information and communication technologies.

FIGURE 4: Dr. Hammond's presentation

Session 3: Interoperability: Speaking the Same Language

Salud.uy's work includes the following:

- Survey the needs of providers
- Define the rules for interoperability
- Implement pilot programs
- Promote good practices and standards
- Generate central infrastructure
- Scale-up at the national level
- Provide a change management strategy
- Create a shared vision

Alba then reviewed Uruguay's national electronic health records system, known as HCEN (historia clínica electronica nacional). Their EHR is composed of interoperable electronic medical records generated by each provider. Although each provider manages his own EHR systems, the information is interoperable because of shared data standards. Through this method, HCEN can record information at each patient interaction: through primary healthcare visits, lab results, emergency room visits, odontological visits, and even mobile consults. This information can then be shared with other providers. Through this platform, the patient can receive continuous healthcare no matter where they seek care.

In summary, Alba summarized that Uruguay's EHR system is not a single EHR software, but rather the sum of successive electronic medical records generated within the different points of care to ensure continuity of patient care.

Salud.uy and the Ministry of Health also employed creative platforms such as a Connectathon in 2016. In this event over 40 organizations and 21 health providers competed in an event to evaluate the degree to which they can share health data between their systems and Salud.uy.

Session 4: Leveraging Technology: The Use of Artificial Intelligence in Clinical Decision Support Systems

LEVERAGING TECHNOLOGY

Overview: The digital transformation of the health sector is an opportunity to incorporate new and emerging technology. For example, machine learning and artificial intelligence provide innovative ways to analyze large amounts of data very quickly. When applied to healthcare, these tools can be used to diagnose conditions much faster and more cheaply than conventional methods. The two use cases from Brazil and China show how these tools are addressing the shortage of insufficient physicians and specialists in rural areas.

Presentation: Portal Telemedicina
Rafael Figueroa
CEO, Portal Telemedicina

In this presentation Figueroa showcased his online platform that utilizes artificial intelligence to help diagnose patients in rural Brazil. This platform was created in response to the challenge of insufficient doctors in remote areas of the country. Using Portal Telemedicina's platform, diagnostic images, such as a CT scan, can be uploaded from a remote clinic in the Amazon. An algorithm then compares that image against historical clinical data to suggest a proposed diagnosis, which is then verified by a radiologist in Sao Paulo. This diagnosis can then be sent back to the original clinic within the same day. This method costs only $4 per test and takes a maximum of 24 hours, while the conventional method required patients to wait 30 days on average for test results that cost hundreds of dollars.

Presentation: Angel Robot – Artificial Intelligence Empowering Primary Care
John Yu, Ph.D.
CEO, Meridian Medical Network Corp.

This presentation focused on the role of artificial intelligence in primary care through the Angel Robot from China.

The Meridian Medical Network Corp is a healthcare IT company that focuses on the integration of big data with medicine to provide smart healthcare systems and solutions.

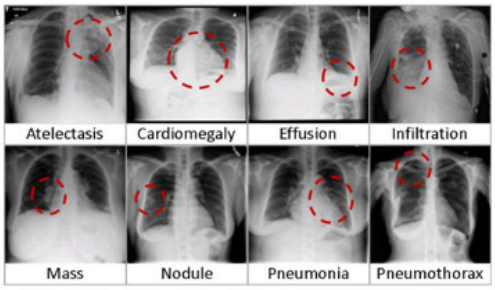

FIGURE 5: An image from Portal Telemedicina

This company created a series of systems that integrate artificial intelligence with clinical decision support systems. One such solution was the Angel Robot, a robot that uses facial recognition to recognize and converse with patients to provide referrals or prescribe medication. They field tested the robot in the county of Jingde in China, which has a shortage of primary care physicians and an aging population. They found that sufficient training is critical to the successful integration of these solutions, and clinical liability and cybersecurity must be clearly defined.

FIGURE 6: Angel Robot

Session 5: Access and Information: How to Overcome Connectivity and Hardware Barriers

Overview: It is impossible to talk about digital transformation without talking about the required infrastructure. Without connectivity, information cannot be exchanged. Without hardware, systems cannot function. However, there are innovative short-term solutions to consider.

Presentation: Connectivity in Latin America: Infrastructure and International Connectivity
Diego Molano
Former Minister of Information Technology and Communication of Colombia

This presentation addressed the current landscape of connectivity in Latin America and the Caribbean. Connectivity coverage exists in the region, although significant challenges remain, such as quality and the ability to transfer large amounts of data.

Chile is the leader in the region in terms of bandwidth, followed by Colombia with 100% of municipalities being connected. There are countries in the region that face significant gaps. One example is Paraguay, which is landlocked and imports all its hardware. In the cases where fiber optics aren't available, there needs to be creative countrywide solutions, with quality being a major focus. This issue of connectivity is an essential step in the digital provision of services to the population. This is especially important when trying to reach remote and vulnerable populations.

Presentation: How to Close the Connectivity Gap
Greg Wyler
Founder and Executive Chairman, OneWeb

During this presentation, Wyler, the founder and executive chairman of OneWeb, spoke about how his company aims to bridge the digital divide and provide internet access in remote areas via low-orbit satellites. The company's goal is to deliver internet services to "hundreds of millions of potential users residing in places without [existing] broadband access." Wyler first began this service by providing schools in Rwanda with internet connection where bandwidth was provided by satellites, which created a slow connection (latency). OneWeb brought the satellites closer to the earth's surface to fix this problem and provide faster and more reliable internet connectivity. OneWeb strives to get the terminals down to a small and portable point, like a remote health system. His system will allow countries to connect into the fiber network at a very high speed. They are launching in French Guiana next year and are heavily investing in the fixed wireless technology space. One Web is fully prepared to be licensed in Latin America and the Caribbean but is awaiting official government approval in many cases.

Wyler emphasized how regulations often lag behind technology development in most countries. He also stated the need to adopt regulation for developments like internet connectivity through low-orbit satellites.

Presentation: Empowering Intelligent Health
Anayda Frisneda
Public Sector General Manager for Latin America, Microsoft

This presentation focused on various aspects of the digital transformation of healthcare, including the proliferation of big data, mobile tools, and social tools through the lens of the private sector. Frisneda focused on digital health harnessing the power of change.

LAC is one of the regions most penetrated by mobile device usage and is entering an innovative and transformative era for health. Three promising areas for innovation are big data, mobile devices, and social networks. The third is especially important when considering how providers serve and interact with different types of patients. These three elements rely on the cloud, which is dependent upon data architecture. When designing a system, policymakers and engineers first must analyze the problem they are trying to solve and evaluate how the data should be managed. This process is the foundation for data architecture. In terms of security, there already exists a security mechanism in the cloud, but countries should build their own security measures within their systems to protect health data.

Session 6: Leading Change for Digital Transformation

Overview: The best system is useless if people do not use it. Information systems are tied to processes that should simplify as much as possible the work of adopting a new technology. This session reviewed the following:

- How do we successfully promote behavior change with personnel?
- What are the best practices in terms of system design?
- What are the best practices in terms of human resource policies?
- What skills do we have to create in our personnel to achieve an intelligent health system?
- What is the patient's role?

Presentation: Best Practices to Design a Successful Behavior Change Strategy
Gloria Ortega
General Manager, Bancard S.A.

In this presentation, Ortega first reviewed a series of technological trends, such as the projected growth of interconnected devices. She also noted that clients are becoming more empowered, live in urban settings, and are taking control of their own healthcare.

Gloria highlighted that technology alone will not bring about success. Any changes in technology must be accompanied by changes in processes, training, compensation, and a behavior change strategy.

She focused on five main tips to avoid failure in digital transformation projects:

1. Achieve quick wins
2. Compile a work team with a visible and active sponsor
3. Measure progress
4. Communicate and celebrate successes
5. Actively manage challenging team members who create roadblocks to progress

She also spoke of the critical inflection moment in technological adoption, and how change can feel threatening for people, especially if it affects their status, certainty, autonomy, or their sense of relatedness or fairness. **She ended her presentation with a note of caution: *instead of digitalizing our lives, we should humanize the digital revolution.***

Presentation: Change Management in the Health Sector – Experiences from South Korea
Hee Hwang, M.D., Ph.D.
Chief Information Officer and Associate Professor of Pediatric Neurology in Seoul National University Bundang Hospital (SNUBH), Korea

Hwang's presentation discussed a successful example of EHR implementation in Seoul National University Bundang Hospital. Through its successful adoption of IT, the completely paperless hospital is one of the leading examples of digital hospitals in the world.

Bundang Hospital relies on its BESTCare 2.0 system, which was launched in 2013.

The system incorporates the following components:

- Service-oriented architecture
- Value-based care (clinical indicators, clinical decision support systems, closed-loop medication administration, clinical pathways)
- Continuum of care ("anytime, anywhere, any device")
- Operates within a data-driven hospital

The Bundang Hospital is also a helpful use case scenario of successful change management. To successfully implement the BESTCare 2.0 system, they created a series of subcommittees that included key users from different job functions. This structure included a physician subcommittee, a nurse subcommittee, and an examination and auxiliary subcommittee. Each subcommittee checked system functionality and continuously educated and trained end users in their departments. The staff in these subcommittees dedicated a significant amount of

time to completing integration tests and simulations, soliciting and relaying feedback from end users, and reviewing the implementation plan with the project team.

The Bundang Hospital reflected the importance of behavior change in their budget: 7% of the total implementation budget was allocated to training and change management (compared to 3% for testing and 10% for data migration). In conclusion, Bundang Hospital is a successful example of well-designed organizational capacity to facilitate adopting new EHR systems.

Presentation: ReSISting Change – Experience from the Hospital Italiano in Buenos Aires
Analía Baum
Chief of Quality and Training in Health Information Systems in the Hospital Italiano

In this presentation, Baum discussed best practices when implementing EHR systems. She identified eight key elements that were imperative for the Hospital Italiano's successful EHR implementation, including the importance of creating a sense of urgency, forming a coalition of health professionals with different strengths and backgrounds, creating a master plan for all information health services, creating the organizational structure, formalizing communication and training processes, making available the information necessary for clinical management and research, evaluating results in a cycle of continuous improvement, and involving end-users in the design process.

The Hospital Italiano developed a Master Plan for Information Systems, as well as a residency program in health informatics to build a pipeline for needed human resources. The residency program focused on empathy, problem-solving, improvisation, flexibility, learning, and capacity-building. They also created an online learning platform for continuous learning and certification options.

She recommended the following:

- Information systems must support the purpose of the organization
- Leaders must have competencies and knowledge of information systems
- Change communication should occur through different channels and in different ways
- Training should be provided for digital literacy
- Change is a process. It should be analyzed, planned, and evaluated.
- Problems with software and hardware are world-wide, while "peopleware" are specific to context and local culture
- In each context, values, beliefs, and priorities should be considered

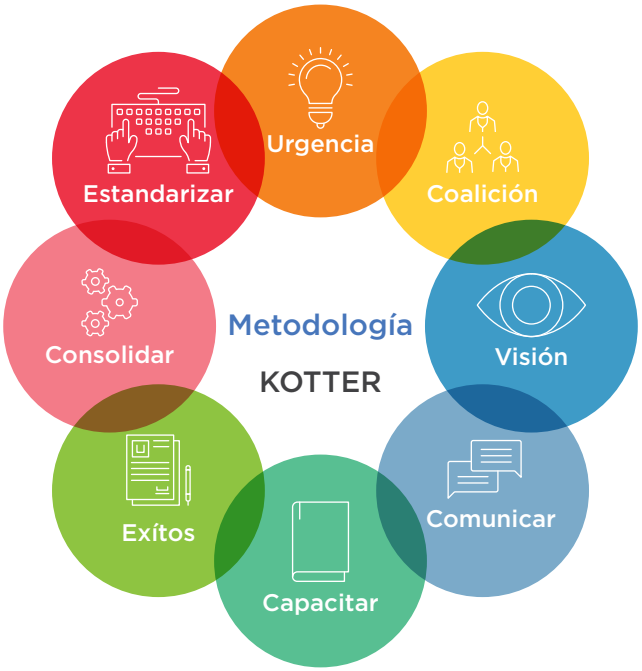

FIGURE 7: Proposed Methodology of Change Management, Baum 2018

After all, digital transformation is not about technology – it's about people.

Session 6: Leading Change for Digital Transformation

Group Work and Table Discussion:

Alan Dowling, Ph.D., and expert in adoption of health information technology, then led the participants through the following questions:

"How ready and able do you feel to lead this kind of change? How worthy or comfortable are you with that type of change?"

Selected answers are shared below:

- "It's important to consider the difference between the public and private sectors, especially regarding the challenges in the participation process in the public sector caused by changing political climates."
- "Achieving digital transformation requires a change in culture."
- "We must translate and effectively convey the benefits of implementing an EHR system. This is especially true in the public sector. Using the press to raise awareness and garner support could be one potential solution. However, the timetable to receiving support is short considering some of the stakeholders may change with election cycles."
- "Fragmentation of systems is often one of the biggest challenges, as well as the challenge in getting technology services to remote areas."
- "When we think of digital transformation, we often don't sufficiently consider the human component. We must focus on training on how to use the technology and why the technology is important. Failure is often caused by insufficient priority placed on human processes."
- "Implementing EHR systems requires a system- or ministry-level perspective. It's not just about tools or platforms, but components that connect to different services and connect data from disparate sources."
- "We must focus on the end goal: access to relevant data at a central level will enable us to make more informed decisions at the ministry-level."

Session 7: Diagnostics: How Ready is My Country for Digital Transformation?

Overview: Each country is at different levels of readiness for achieving an intelligent health system in terms of governance, technology and human resources. This session presented maturity models and tools to diagnose health information systems and determine next steps.

To start off this session, IDB Health Specialist – Digital Solutions, Jennifer Nelson, presented results from the pre-event survey. The survey used questions from the Global Digital Health Index to allow meeting participants to share their perceptions and answer these questions to the best of their knowledge about their context. The tool provided a quick way to asses key areas such as strategy, policy, infrastructure, workforce and interoperability - key building blocks for any digital health strategy. Such tools are helpful for diagnosis and project preparation.

Presentation: How to Assess and Continuously Improve the Maturity of Health Information Systems for Better Health Outcomes
Manish Kumar
Technical Specialist for the Strengthening of Health Systems, University of North Carolina

In this presentation, Kumar shared MEASURE Evaluation's tool to help countries identify their stage of development in creating health information systems. MEASURE is a global five-year cooperative agreement with six partners, led by the University of North Carolina at Chapel Hill. Its strategic objective is to strengthen capacity in developing countries to gather, interpret, and use data to improve health. They employ a "stages" model, a systematic method that provides a means of describing stages through which systems can evolve to reach a predefined capability. "Stages," or "levels," refers to the progression toward given performance objectives, which have defined metrics that facilitate progression from one stage to another as a way to characterize improvements.

Their Health Information System Stages of Continuous Improvement Assessment Tool provides a thorough diagnostic tool to compare a country's current capacities against a benchmark of different stages of maturity of health information systems (HIS). The tool uses a five-point measurement scale and is part of the toolkit that countries or organizations can use to assess, plan, and prioritize investments to strengthen their HIS. The intermediate results

Global Digital Health Index	Yes *Si*	In Progress *En Proceso*	No *No*	Not sure *No estoy seguro*	Índice Global de Salud Digital
Leadership & Governance: separate department for digital health	25%	29%	33%	13%	**Liderazgo y gobernanza:** un departamento para el área de salud digital
Strategy and investment: digital health strategy & costed digital health plan	29%	38%	33%	0%	**Estrategia e inversión:** estrategia y plan de salud digital con presupuesto
Legislation & policy: laws on data security	58%	17%	8%	17%	**Legislación y política:** una ley sobre seguridad de datos
Legislation & policy: laws to protect privacy	71%	8%	8%	13%	**Legislación y política:** una ley para proteger la privacidad
Workforce: digital health part of curriculum for health professionals	4%	25%	25%	46%	**Fuerza laboral:** la salud digital forma parte del plan de estudios de los profesionales de salud
Interoperability: my country has national standards	29%		63%	8%	**Interoperabilidad:** mi país cuenta con estándares nacionales
Infrastructure: plan for supporting digital health infrastructure, provision and maintenance	38%		46%	17%	**Infraestructura:** plan para apoyar la infraestructura, provisión y mantenimiento de la salud digital
Interoperability & transparency: shares data with other sectors	29%	38%	21%	13%	**Interoperabilidad y transparencia:** mi país comparte datos con otros sectores

FIGURE 8: Results of Regional Policy Dialogue Pre-Survey, IDB 2018

Session 7: Diagnostics: How Ready is My Country for Digital Transformation?

from the implementation of this tool include the following:

- Strengthened collection, analysis, and use of routine health data
- Improved country capacity to manage health information resources and staff
- Improved methods, tools, and approaches to address health information challenges and gaps
- Increased capacity for rigorous evaluation

Presentation: How Ready is my Country for Digital Transformation?
Marcelo D'Agostino
Senior Advisor, Information Systems for Health, Pan American Health Organization

In this presentation, D'Agostino discussed PAHO's initiative to improve information systems for health in the Americas in a program known as IS4H. As part of this initiative, PAHO has developed a maturity assessment model to assess the maturity of a country's health information system. Their tool measures the degree to which information is organized and managed, whether public health decisions are informed by data, the existence of public health information governance and whether an implemented health information system is in place.

D'Agostino focused on the importance of incorporating health within a digital government framework, rather than the other way around. Digital health strategies must be a part of a government's overall digital strategy. He emphasized the importance of creating a digital government and building the appropriate infrastructure, which then serves as the foundation for EHR systems. By following these processes, countries in the region will be able to manage interoperable systems with open data from different sources, analyze data ethically through effective information and communication technology (ICT) tools, and generate strategic information for the benefit of public health.

PAHO and the IDB plan to support countries in conducting maturity assessments and roadmap implementation. With this assistance, countries in the region can implement national roadmaps and policies for interoperable systems with mechanisms for informed decision-making. Additionally, PAHO is currently developing the Regional Strategy and Plan of Action on Information Systems for Health (2019), which will hopefully be endorsed by all Member States.

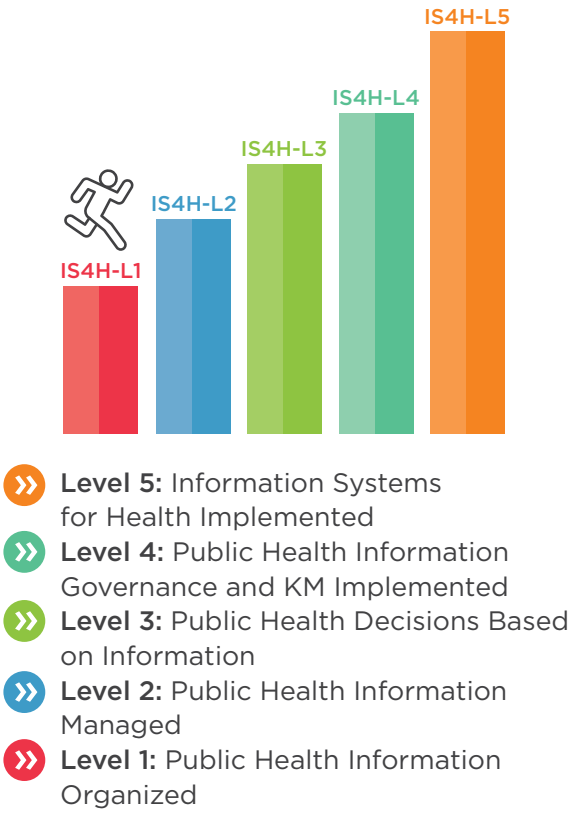

FIGURE 9: PAHO's IS4H Maturity Model Stages

Session 8: Opportunities and Efforts toward Regional Collaboration

Overview: Is it possible to learn from the mistakes of others to avoid committing them ourselves? Collaborative communities have proliferated in almost all types of activities, including the health sector. The session discussed the following questions:

- How do we articulate a network of collaboration to take advantage of the knowledge within the region?
- How do we better systematize regional knowledge to learn from ourselves?

Presentation: The Experience of the Asia eHealth Information Network (AeHIN)
Alvin Marcelo, MD
Director, AeHIN
Boonchai Kijsanayotin, MD
Manager and Health Informatician at the Thai Health Information Standards Development Center

AeHIN is a network of health and health IT professionals in South and Southeast Asia committed to promoting the use of ICTs to achieve better health. They've grown from 10 people to more than 1000 and have produced several resources, including an open EHR architecture and an e-health capacity building roadmap. The network has a general committee and working council that includes volunteers from each country. Initially, the main players of the network include officials from the ministries of health (MOH) in the region as well as across government officials from other sectors to increase buy-in from country governments. The government representatives from other ministries were critical, given that many of the resources needed were beyond the capacity of country MOHs in terms of IT infrastructure and HR personnel need.

AeHIN's vision is to promote learning through a networking approach regarding digital health. The network engages in four strategic areas:

- Build capacity for eHealth, Health Information Systems, and Civil Registration and Vital Statistics (CRVS)
- Increase peer assistance, knowledge exchange and sharing through effective networking
- Promote standards and interoperability within and across countries
- Enhance leadership, sustainable governance, and monitoring and evaluation

WHO and AeHIN provide technical support to make e-health scalable and sustainable using certified governance, enterprise architecture, ICT program management, and optimization procedures. To develop national healthcare IT systems, the network suggests that countries work on four important fundamental topics, referred to as the GAPS framework:

1. Governance: ICT applications in healthcare need to be governed by the highest accountable officials. This means they define the expected benefits and expected risks and allocate resources.

2. Architecture: ICTs in healthcare need a clear blueprint so all stakeholders in a country will know how they can contribute to the structure rather than build in silos.

3. People and program management: ICTs in healthcare require capacity-building of key sectors (clinical, IT, and administration) working together to make it work seamlessly.

4. Standards and interoperability: ICTs in healthcare work best if standards are adopted and reused by all stakeholders.

Presentation: RACSEL
Fernando Portilla
AGESIC Consultant in Uruguay for the American Network of Cooperation on Electronic Health (RACSEL)

Portilla presented his work with the American Network of Cooperation for Electronic Health (RACSEL, for its initials in Spanish). RACSEL's member countries include Costa Rica, Peru, Chile, Colombia and Uruguay. Through collaborating within the network, member countries identified shared challenges and distinct strengths and weaknesses. Governed by a regional technical committee, RACSEL aims to

Session 8: Opportunities and Efforts toward Regional Collaboration

address issues in digital health, including differences in terminology and creating legal frameworks around digital health. The network strongly promotes the adoption of data standards and architectures for information exchange processes.

RASCEL was supported by IDB's Regional Public Goods. Membership is open to all countries in the region and prospective members should express formal interest in joining the network. RACSEL has launched several courses and created an education platform through the IDB.

Through its experiences working with member countries, RACSEL shared the following lessons learned:

- Within the LAC region are countries with varying strengths and needs in a health information system.
- Despite these differences, many countries face similar problems.
- RACSEL can play a unique role in supporting countries to navigate these challenges.
- Human resources must be prioritized in a country's digital health strategy.
- Concrete and focused objectives produce results.

Presentation: Opportunities and Regional Collaboration Efforts

Luis Tejerina and Jennifer Nelson
Sector Lead Specialists at the Inter-American Development Bank

During the presentation, event participants were encouraged to contribute to ongoing regional initiatives, such as IDB's Code for Development and other regional partnerships, including RACSEL. With IDB's Code for Development, participants can share code for different applications. Nelson and Tejerina also announced that IDB has officially endorsed the Principles for Digital Development, which are nine living guidelines that help digital development practitioners integrate best practices into technology-enabled programs.

Additionally, they shared that SPH will launch +Digital in 2019, a one-stop shop for governments and partners to share resources and solutions related to digital health.

FIGURE 10: Principles for Digital Development

Intraregional Group Work:

At the end of the RPD, participants divided into groups based on sub-region to reflect on what they had done during the meeting, why they had done it, and the next steps. The participants identified that they had met new people, learned from the experiences of other countries, shared challenges, learned about behavior change processes, the humanization of technology, the importance of empathy and the continuous improvement of technological innovation. All regions favored continued regional work and collaboration to increase knowledge and cooperation, such as RASCEL. A summary of the results by sub-region can be found in Annex C.

Conclusions

The event fostered a collaborative and innovative environment for participants to learn and share experiences about digital transformation and EHR implementation. At the closing activity, participants reflected that the content they learned will help them guarantee the quality of healthcare services, build in-person relationships with others, improve equitable healthcare services, and lead the dialogue and agenda for a digital transformation in their respective countries.

With the knowledge gained during the event, participants felt emboldened to plan a regional roadmap, generate a knowledge platform, communicate and socialize what they've learned, define standards for digital innovation, seek technical help, plan strategically for necessary resources (such as human resources), collaborate at the regional level, coordinate with multilateral agencies, create digital safeguards, and utilize resources such as Code for Development and RACSEL in the future. There is also energy surrounding the creation of a regional network specifically within the Caribbean.

In a post-event survey, the meeting obtained an average rating of 4.8 out of 5, with 48 respondents participating. The most highly related components of the meeting included the content and structure of the agenda (4.8/5) and the organization of the meeting / logistics (4.8/5). Overall, the participants also praised the organization of the event but highlighted the need for more time for group discussions.

CLOSING REFLECTIONS

- Digital transformation of the health sector is very challenging - but not impossible. It's a worthy endeavor and represents the future of healthcare delivery. Governance is key to clarify rules and responsibilities, create a national commitment through strategies, and establish the right incentives for stakeholders.
- To achieve the effective digital transformation of our systems, we need to define system architecture and standards right from the beginning. While creating the architecture for the system, we must pay special attention to elements that allow for interoperability between systems. These include common language and standards, such as HL7, LOINC, and ICD10, for systems to properly function and share information.
- One area that is often forgotten in digital transformation processes is the human element. Any change will bring supporters and detractors, and we must actively plan how to handle those who are resistant to change. This planning needs to be part of the design of the digital transformation. Behavior change is not a onetime exercise, but rather must be a permanent feature of digital transformation.
- Emerging technologies provide unique solutions to entrenched healthcare problems. Advances such as low-orbit satellites to provide connectivity to remote clinics and robots using artificial intelligence to provide clinical support decision-making are already in use. However, we have a responsibility to ensure that regulation catches up with technology and manage potential risks to be able to utilize these technologies adequately.
- Finally, it is critical to know where we want to go and access the current state of readiness for digital transformation to create a holistic and accurate roadmap. Creating overambitious plans without understanding our current starting point is a recipe for disaster. We must also learn from other countries' mistakes to avoid known errors and pitfalls. We can do so by creating collaborative networks that document and share information and experiences. While keeping all these components in mind, IDB is eager to accompany this journey of a digital transformation of the health sector.

Annex A: Agenda

TUESDAY, OCTOBER 9

Inter-American Development Bank
1300 New York Avenue NW

09:00 - 10:45 AM *Opening of the Regional Health Policy Dialogue 2018*	**Marcelo Cabrol**, Social Sector Manager of the IDB **Ferdinando Regalia**, Chief of the Social Protection and Health Division, IDB **Presentation of the Regional Participants and Networking** **David Eaves,** Harvard Kennedy School. Public policy entrepreneur and expert in information technology for governments. Key aspects of global digital transformation: > Why is digital transformation key? > What are the opportunities and risks? **Question and answer session**
10:45 - 11:00 AM	Coffee
SESSION 1	*The Route to Electronic Health Records*
11:00 - 12:30 PM	Although the countries of the region have made slow progress in the implementation of electronic health records (EHR), there are international examples that can be useful to answer certain questions: > What are the most important elements to implement EHR? > What are the experiences of countries that implemented EHR successfully? > Which of these elements are applicable to our region? **Peeter Ross,** MD, Ph.D.; Professor of eHealth at the Tallinn University of Technology, Estonia. Estonia's Path to EHR. **Jennifer Zelmer,** Ph.D.; President of the Azimuth Health Group. Canada's Path to EHR. Question and answer session **Group work:** What is the principal problem in your country?

TUESDAY, OCTOBER 9

12:30 - 1:45 PM	Lunch
SESSION 2	***Governance, the Foundation for Electronic Health Records***
1:45 - 2:45 PM	One of the first elements of EHR implementation is the development of appropriate regulations that align relevant actors and facilitate the generation and flow of information in the system. To begin this discussion, we have to answer: > How do we structure the governance of digital transformation? > Who do we involve, and what is their role? > What is the role of legislation in implementing EHR? > What are some challenges/good practices during implementation?
	Javier Carnicero, Head of the Contracting of Health Services Unit, Health Service of Navarra (Spain). Governance of health information systems in Latin America and the Caribbean. **Heimar F. Marin,** Ph.D.; Professor of Health Informatics, Federal University of Sao Paulo, Brazil. Governance and the use of health information systems: the experience of Brazil. **Question and answer session**
2:45 - 3:00 PM	Coffee
SESSION 3	***Interoperability: Speaking the Same Language***
3:00 - 4:15 PM	Continuity of care requires quality data throughout all interactions with the patient. For this reason, it's critical to have quality data that can be shared with various parts of the health system. The only way to ensure this quality across all environments is through three elements: standards, interoperability, and architecture. In this session, the following questions will be discussed: > Quality of care: how can information improve continuity and quality of care? > I want my silos to communicate: how do I achieve interoperability of my systems? > What are the elements necessary for information systems to talk to each other? > What actions should be taken to enable communication within health information systems?

TUESDAY, OCTOBER 9

	William Hammond, Ph.D.; Director, Duke Center for Health Informatics. The importance of international standards and their worldwide implementation. **Carlos Alba**, Director of Strategic Planning, Agency for Electronic Government and the Information and Knowledge Society (AGESIC) of Uruguay. Architecture and interoperability, and the experience of the Connectathon. **Question and answer session**
4:15 - 4:30 PM	Coffee
SESSION 4	***Leveraging Technology: The Use of Artificial Intelligence in Clinical Decision Support Systems***
4:30 - 5:40 PM	**Rafael Figueroa,** CEO, Telemedicine Portal Sao Paulo. Telemedicine and mHealth have the potential to connect the most disconnected. **John Yu,** Ph.D.; CEO, Meridian Medical Network Corp. In China, the county of Jingde is implementing a technological solution using artificial intelligence to support primary care physicians in remote areas. Image and voice recognition technology are used to facilitate data entry and a clinical decision support system.
5:40 - 6:00 PM	Closing Remarks

WEDNESDAY, OCTOBER 10

SESSION 5	***Access and Information: How to Overcome Connectivity and Hardware Barriers***
09:00 - 10:10 AM	It is impossible to talk about digital transformation without talking about the required infrastructure. Without connectivity, information cannot be exchanged. Without hardware, systems cannot function. However, there are innovative short-term solutions to consider.
	Diego Molano, Former Minister of Information Technology and Communication of Colombia. The ecosystem required for digital transformation. **Greg Wyler,** Founder and Executive Chairman, OneWeb. How to close the connectivity gap. **Anayda Frisneda,** Public Sector General Manager for Latin America, Microsoft. **Question and answer session**
10:10 - 10:25 AM	Coffee
SESSION 6	***Leading Change for Digital Transformation***
10:25 - 12:30 PM	People are the most critical and the most challenging aspect of digital transformation. Adopting new technologies requires changes in processes and culture, which can be confusing and frustrating for patients and providers. Leading and managing this change is critical to success. In this session we will discuss both research, experiences and tools for leading and managing change for digital transformation from the providers', patients' and leaders' perspectives.
	Gloria Ortega, General Manager, Bancard S.A. Best practices to design a successful behavior change strategy.

Hee Hwang, MD, Ph.D.; Chief information Officer and Associate Professor of Pediatric Neurology in Seoul National University Bundang Hospital (SNUBH), Korea. Change management in the health sector – experiences from South Korea.

Analía Baum, Chief of Quality and Training in Health Information Systems, Hospital Italiano de Buenos Aires. ReSISting change – experience from the Hospital Italiano of Buenos Aires.

Moderated by:
Alan Dowling, Ph.D.; Expert in adoption of health information technology.

Question and answer session

12:30 - 1:30 PM	Lunch
SESSION 7	***Diagnostics: How Ready is My Country for Digital Transformation?***
1:30 - 2:30 PM	Each country is at different levels of readiness for achieving an intelligent health system in terms of governance, technology and human resources. In this session, we present maturity models and tools to diagnose health information systems and determine next steps.

Manish Kumar, Technical Specialist for the Strengthening of Health Systems, University of North Carolina. Tools to evaluate the state of a health information system at a global level.

Marcelo D'Agostino, Senior Advisor, Information Systems, Knowledge Management, Big Data at Pan American Health Organization/World Health Organization.

Question and answer session

2:30 - 2:45 PM	Coffee

WEDNESDAY, OCTOBER 10

SESSION 8	*Opportunities and Efforts toward Intraregional Collaboration*
2:45 - 5:15 PM	Is it possible to learn from the mistakes of others to avoid committing them ourselves? Collaborative communities have proliferated in almost all types of activities, including the health sector. The session will discuss questions such as: > How do we articulate a network of collaboration to take advantage of the knowledge within the region? > How do we better systematize regional knowledge to learn from ourselves? **Alvin Marcelo,** MD; Director, Asia eHealth Information Network (AeHIN). The experience of AeHIN in Asia. **Boonchai Kijsanayotin,** MD; Manager and Health Informatician, Thai Health Information Standards Development Center (THIS). **Fernando Portilla,** AGESIC Consultant in Uruguay for the American Network of Cooperation on Electronic Health. The experience of the region in collaborative networks for EHR implementation. **Session of questions and answers. Group work related to the future of regional collaboration in Latin America and the Caribbean.**
5:15 - 5:30 PM	Final Remarks

Annex B: Participants

External Participants

Argentina	Daniel Rizzato	Director of Development of Health IT Systems	Ministry of Health of the Nation
Barbados	Karl Waithe	Director of Information Systems	Ministry of Health and Wellness
Barbados	Annalee Babb	Chief Executive Officer	ACB Knowledge Consultants Inc.
Brazil	Geraldo Reple	Healthcare Secretary	Ministry of Health
Brazil	Ana Estela Leite	Adjunct Health Secretary	Municipality of Fortaleza
Brazil	Carla Reis	Sector Manager	Brazilian Development Bank (BNDES)
Brazil	João Pieroni	Director	Brazilian Development Bank (BNDES)
Colombia	Germán Rueda	Independent Advisor	Independent Advisor
Dominican Republic	Neftalí Vásquez	Viceminister	Ministry of Public Health
Dominican Republic	Chanel Rosa	Director of the National Health Service	National Health Service
Dominican Republic	Rosaura Quiñones	Assistant	National Health Service
Ecuador	Itamar Rodríguez	Viceminister of Integral Healthcare	Ministry of Public Health
Ecuador	Jonathan Finlay	Manager of Technological Innovation in the Integral Health System	Ministry of Public Health
El Salvador	Eduardo Espinoza	Viceminister	Ministry of Health
Guatemala	Julio García Colindres	Viceminister of Primary Healthcare	Ministry of Public Health
Guyana	Kay Shako	Director of Regional Health Services	Ministry of Public Health
Honduras	Fanny Mejía	Viceminister	Secretariat of Health of Honduras (SESAL)
Honduras	Roberto Carlos Salinas López	Director	Presidential Commission of Social Protection
Jamaica	Michele Roofe	Senior Medical Officer (Health) - Health Informatics	Ministry of Health
Mexico	Ana de la Garza	Specialist in Epidemiology and Public Health	Académica

Panama	Dra. Nitzia Iglesias	Director of Provision	Ministry of Health (MINSA)
Panama	Lic. Felix Stanziola	Director of Informatics	Ministry of Health (MINSA)
Paraguay	Silvia Brizuela	General Director of the National Directorate of Strategic Human Resources in Health	Ministry of Public Health and Social Wellbeing
Paraguay	Emidal González	General Director of Information and Communications Technology (DGTIC)	Ministry of Public Health and Social Wellbeing
Peru	Dr. Diego Venegas	Viceminister	Ministry of Health
South Korea	Kkotshigye Shin	Minister-Counselor for Health	Korean Embassy
Spain	Agnès Aguilo	Engineer	IN2
Suriname	Edith Moore	Deputy Director of Health	Ministry of Health
Trinidad and Tobago	Asif Ali	Permanent Secretary	Ministry of Health
Trinidad and Tobago	Debra Parkinson	Deputy Permanent Secretary	Ministry of Health
Uruguay	Adriana Brescia	Director General of Coordination	Ministry of Public Health

Annex B: Participants

Inter-American Development Bank Participants

Argentina	Mario Alberto Sánchez	Senior Protection Specialist
Bolivia	Luis Buscarons Cuesta	Social Protection and Health Senior Specialist
Brazil	Francisco Jose Ochoa	Social Protection Specialist
Brazil	Ian William Mac Arthur	Social Protection Lead Specialist
Brazil	Marcia Gomes Rocha	Sector Senior Specialist - Health
Colombia	Jaime Eduardo Cardona Rivadeneira	Sector Senior Specialist – Social Protection and Health
Dominican Republic	Carolina González Acero	Health Specialist
Ecuador	Julia Johannsen	Social Protection Senior Specialist
Ecuador	Xiomara Margarita Aleman	Social Protection Specialist
El Salvador	Maria Deni Sanchez	Social Protection Specialist
Guatemala	Ignacio Jose Astorga	Sector Lead Specialist - Health
Honduras	Hugo Danilo Godoy	Social Protection and Health Lead Specialist
Mexico	Ana Mylena Aguilar Rivera	Sector Senior Specialist - Health
Mexico	Ignez M. Tristao	Sector Lead Specialist – Social Protection
Nicaragua	Leonardo Enrique Pinzón Enciso	Sector Senior Specialist – Social Protection and Health
Nicaragua	Rita Elizabeth Sorio	Sector Lead Specialist – Social Protection and Health
Panama	Carolina Angelica Freire Samudio	Sector Specialist – Social Protection
Panama	Emmanuelle Sánchez-Monin	Sector Lead Specialist – Social Protection
Paraguay	Lesley Deanne O'Connell	Social Protection Senior Specialist
Peru	Frederico Campos Guanais de Aguiar	Health Specialist
Trinidad and Tobago	Ian Ho-A-Shu	Health Senior Specialist
United States	Mario Casco	IT Senior Specialist
United States	Cecilia Martinez	Consultant
United States	Andrea Proaño	Consultant
United States	Andrea Ulrich	Consultant
United States	Diana Pinto	Health Lead Specialist
United States	Elizabeth Bastias Butler	Consultant
United States	Emma Iriarte	Sector Specialist - Health

United States	Euisu Hwang	Consultant
United States	Florencia López Boo	Economics Lead Specialist
United States	Gianluca Cafagna	Consultant
United States	Indhira Ramírez	Consultant
United States	Jennifer Nelson	Sector Specialist – Health Digital Solutions
United States	Luis Tejerina	Sector Lead Specialist - Economics
United States	Marcella Distrutti	Sector Specialist - Health
United States	Marco Stampini	Social Protection Lead Specialist
United States	Maria Caridad Araujo	Economics Specialist – Early Childhood Development
United States	Marta Rubio Codina	Economics Senior Specialist
United States	Matilde Neret	Operations Lead Specialist
United States	Pablo Ibarraran	Social Protection Lead Specialist

Annex C: Selections

from Session 8's Intraregional Group Exercise

What did we do?	Why did we do it?	Now what?
Group A: Caribbean		
• Listened • Shared experiences • Networked • Learned about new topics: governance, change management • Improved understanding about digital ecosystem • Reviewed what works versus what doesn't	• Better health outcomes • Misery loves company • Greater appreciation of the role of technology (AI) and the human element • Learning how to lead • All the components and elements of the ecosystem • We don't want to repeat the same mistakes as others • We must empower ourselves to lead and make that change • Establish a governance model • How to develop a network	• Establish governance model (intersectional) • Establish digital transformation strategy with budget • Caribbean conversation to develop network (e.g. AeHIN)
Group B: Central America		
• We met new people • Experiences from other countries • We learned about processes of change • We shattered myths • Discussed interoperability • Technology + processes + people • Shared challenges • Importance of empathy • Innovation technology for continuous improvement	• To close gaps and ensure quality and continuous access to health services • For informed decision making • To guarantee equity • To encourage integration • To lead a dialogue and agenda for digital transformation • To follow the patient • To obtain information in a timely manner	• Change paradigms • Communicate and socialize what has been learned • Define standards to operationalize digital innovations (personnel) • Plan necessary resources • Intraregional collaboration • Coordinate the strategy with multilateral agencies and cooperate with governments • Create digital safeguards for loans and monitoring • Use RACSEL

Annex C: Selections

from Session 8's Intraregional Group Exercise

What did we do?	Why did we do it?	Now what?
Group C: Andean Countries		
• Reflect on digital transformation • Learn challenges and problems, history, state of the region • Perspective: collaborative strategy (networks) • Opportunities: collaborations relationships • Emphasis: not on tech • Identify problems and objectives	• Instrumentalize digitization in the region and in practice (to define starting point and knowledge levels) • Know where we are and where to go • Identify common areas • Build relationships in person • Identify opportunities for cooperation and improvement • To know "what not to do" with EHR	• Develop common regional roadmap • Generate a knowledge network • Internally (by country) identify allies • Seek technical support • Identify short / medium / long term key points to include in action plans • Create regional plan using what exists (tools and technologies)
Group D: Southern Cone		
• Shared good experiences, best practices, and knowledge (lessons learned and mistakes) • Identified needs, actors and tools • Learned from other realities • Recognized opportunities for collaboration	• Access and coverage (universal healthcare) • Identify opportunities for collaboration • Achieve success and avoid failure • Achieve objectives of improving the health system, as well as equity and efficiency • Make better decisions • Decrease gaps	• Strategy • Governance (state participation) • Leadership • Financing • Capitalize on experiences for collaboration • Legal change and adaptation • Define standards (RACSEL) • Identify focal points • Knowledge management repository for information

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