

INFORMATION PAPER
on
Main eHealth activities outside of the EU

Annex II-1
Main PAHO eHealth policies and activities

LIST OF ABBREVIATIONS

ACCRONYM	DEFINITION
BIREME	PAHO's Latin American and Caribbean Center on Health Sciences Information
CDC	Centers for Disease Control and Prevention
CHA	Communicable Diseases and Health Analysis
CHA/HA	Health Information and Analysis
CRICS9	Ninth Regional Congress on Health Sciences and Health Information
ECLAC	Economic Commission for Latin America and the Caribbean
eSAC	Public eHealth Innovation and Equity in Latin America and the Caribbean
GOe	Global Observatory for eHealth
HSS	Department of Health Systems and Services
IDRC	International Development Research Centre (Ottawa, Canada)
ITU	International Telecommunication Union
KBR	Department of Knowledge Management, Bioethics and Research
LAC	Latin America and the Caribbean
NCD	Non-communicable disease
NCSA	National Center for Supercomputing Applications at the University of Illinois
PAHO	Pan American Health Organization
SCA-ECLAC	Statistical Conference of the Americas of the Economic Commission for Latin America and the Caribbean
TAG	Technical Advisory Group

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Preamble

Object

The present document is an Annex to Joint Action to support of the eHealth Network (JAsEHN) Deliverable 8.1.4 in WP8 "Report on main eHealth activities outside of the EU". It has been prepared by Norbert Paquel (external, director of Canopé cabinet – France) under the control of Michèle Thonnet (Work Package leader-FRNA), then corrected and approved by the sPSC.

The objective of D8.1.4 is to observe the situation in various countries in order to better understand the development factors and main trends in the worldwide movement towards a tighter integration of ICT tools in healthcare but also to be able to initiate cooperation when advisable and possible. Information has also been gathered for two organizations that play a role in many projects, PAHO and World Bank.

Methodology

As explained in the main D8.1.4 document, the research was based on a desk study carried out between 2017/02 and 2017/08. It is important to note that time runs often very fast in the eHealth and mHealth domains. Accordingly, contrary to healthcare organizations and fundamental policies trends, concrete programmes and projects can change rapidly. However, if they correspond to clear needs and sustainable methods, they should not disappear. Moreover, important developments that may have occurred since August 2017 have been taken into account when possible.

- I -

Introduction and background**1. Synthetic presentation of the Pan American Health Organization**

The Pan American Health Organization (PAHO) is the specialized international health agency for the Americas. Created in December 1902, it is the world's oldest international public health agency. PAHO's main governing bodies are the Pan American Sanitary Conference, the Directing Council, and the Executive Committee. It is the specialized health agency of the Inter-American System and also serves as Regional Office for the Americas of the World Health Organization (WHO).

Figure 1: List of PAHO Member States (by date of Admission)

Member States	Date of Admission
United States of America	28 March 1925
Cuba	26 June 1925
Nicaragua	17 December 1925
El Salvador	28 May 1926
Haiti	25 June 1926
Peru	20 November 1926
Costa Rica	13 December 1926
Uruguay	14 December 1928
Mexico	01 March 1929
Panama	09 March 1929
Bolivia	22 March 1929
Chile	03 October 1929
Brazil	29 October 1929
Dominican Republic	18 November 1929
Ecuador	27 September 1930
Venezuela	13 March 1933
Guatemala	10 May 1933
Colombia	21 June 1933
Argentina	27 September 1937
Paraguay	14 June 1939
Honduras	15 January 1957
Jamaica	23 August 1962
Trinidad and Tobago	20 September 1963
Barbados	02 October 1967
Guyana	02 October 1967
Canada	27 September 1971
Bahamas	08 October 1974
Suriname	29 September 1976

Grenada	29 September 1977
Saint Lucia	22 September 1980
Dominica	21 September 1981
St. Vincent and the Grenadines	21 September 1981
Antigua and Barbuda	20 September 1982
Belize	20 September 1982
St. Kitts and Nevis	24 September 1984

In addition to its 35 Members States, PAHO has 3 Participating States (France, The Netherlands, United Kingdom), 4 Associate Members (Puerto Rico, Aruba, Curaçao, Sint Maarten) and two Observers States (Spain and Portugal).

PAHO's goal is to strengthen national and local health systems and improve the health of the peoples of the Americas, in collaboration with Ministries of Health, other government and international agencies, NGO, universities and other stakeholders.

PAHO's priorities are:

- Fight communicable and non-communicable diseases and their causes;
- Strengthen health systems;
- Respond to emergencies and disasters;
- Facilitate access to health care;
- Promote technical cooperation between countries;
- Promotes the inclusion of health in all public policies and the engagement of all sectors in efforts.

One PAHO's mean of action is to propose programs and work groups to its members concerning specific topics and issues.

eHealth policy at PAHO is strongly rooted in WHO eHealth policies. eHealth is envisioned as a means of improving health services access and quality, based on the use of information and communications technologies (ICTs), the development of digital literacy and ICTs, access to information based on scientific evidence and ongoing training, and the use of various methods.

The eHealth program works with partners at the global, regional and country level to promote and strengthen the use of information and communication technologies in health development, from applications in the field to global governance. The program is based in the Department of Knowledge Management, Bioethics and Research (KBR).

2. PAHO resources and priorities

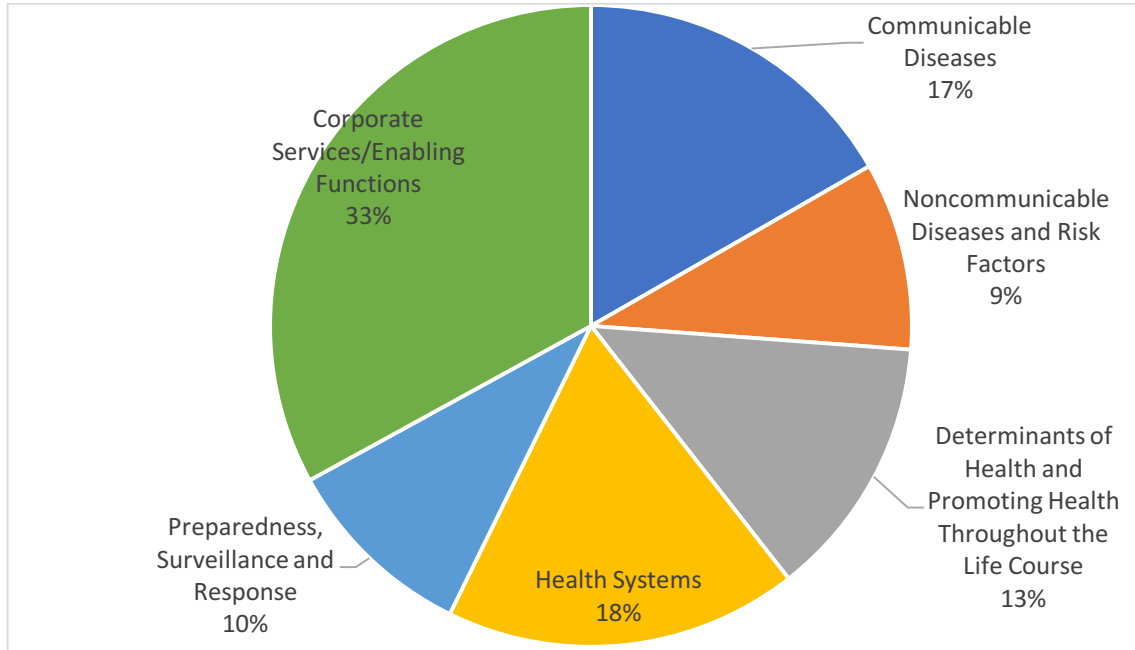
PAHO's resources are made up of assessed contributions from Member States, Participating States, and Associate Members, Budgeted miscellaneous revenue (income earned from investing the Organization's excess liquidity), other various sources (voluntary contributions usually earmarked for specific programs or projects, program support cost earnings, one-time funding used to implement the programs described in the biennial Program and Budget) and allocation of the WHO's Program Budget to the Region of the Americas.

PAHO has a bottom-up approach to planning and budgeting. Planning exercises are conducted across the Organization's country, subregional, and regional levels to identify priorities and resource requirements by outputs. The Organization's value-added and key

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interventions to address the issues under each program area are also important considerations.

Figure 2: Share of PAHO 2016/2017 Proposed Budget (Gross categories)



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Telemedicine and eHealth

3. eHealth Strategy and Plan of Action (2012-2017)

The eHealth Strategy and Plan of Action (2012-2017) was adopted by resolution CD51.R5 by the 51st directing council during the 63rd session of the regional committee (26-30 September 2011). Its objective is to help ensure the sustainable development of the Member States' health systems, including veterinary public health.

The Strategy is based on four areas: policy, tools and methodologies, horizontal collaboration among countries, and knowledge management. Actions in these areas seek to

- strengthen health systems;
- integration, decentralization, and the elimination of obstacles hindering access to services;
- optimal management of infrastructure and human resources;
- promotion of community participation mobilization and strengthening of support networks;
- mobilization and strengthening of support networks;
- establishment of intersectoral and public-private partnerships;
- strengthening of national science and technology output;
- taking advantage of PAHO members experience of veterinary public health programs.

Figure 3: PAHO eHealth Strategy and Plan of Action Strategic Areas and Objectives

STRATEGIC AREAS	OBJECTIVES
<p>1: Endorse and promote the formulation, execution, and evaluation of effective, comprehensive, and sustainable public policies on the use and implementation of information and communication technologies in the health sector.</p>	1.1: Support the formulation and adoption of people-centred eHealth public policies.
	1.2: Help set eHealth-related political priorities at the national and regional levels.
	1.3: Support the establishment of an intersectoral national network (civil society/public network/private network) to participate in the formulation of eHealth policies and standards, as well as decision-making in that area.
	1.4: Consolidate a regional system to evaluate and analyse the eHealth policies of the Member States.
<p>2: Improve public health through the use of tools and methodologies based on innovative information and communication technologies.</p>	2.1: Improve organizational and technology infrastructure.
	2.2: Promote the use of epidemiologic surveillance services, including the human-animal interface, through the use of information and communication technologies.
	2.3: Promote the sustainable, interoperable development of eHealth-centered programs and initiatives that are capable of expansion.
<p>3: Promote and facilitate horizontal cooperation among countries for development of a digital health agenda for the Region.</p>	3.1: Promote intersectoral cooperation, both within each country and among several countries, and identify electronic mechanisms for sharing best practices, regional resources, and lessons learned.
	3.2: Promote the standardized interoperability of health systems (organizational and technological interoperability).
	3.3: Identify a legal framework that supports the use of information and communication technologies in the health sector and facilitates the electronic sharing of clinical information at the national and regional level. This legal framework will promote the validity of telemedicine activities and safeguard the protection of personal data.
<p>4: Knowledge management, digital literacy, and education in information and communication technologies as key elements for ensuring the quality of care, health promotion, and disease prevention activities, guaranteeing training and better access to information in an equitable manner.</p>	4.1: Promote training in information and communication technologies in universities and among health professionals.
	4.2: Provide reliable, quality information on health education and disease prevention to the population and health professionals.
	4.3: Facilitate the dissemination, communication, and widespread distribution of health information, with emphasis on emergencies, through social networks.

4. Strategy and Plan of Action mid-term review

In 2016, a midterm review of the eHealth Strategy and Plan of Action was published. It provided updates on progress made and provided recommendations for the remaining implementation time.

4.1 Situation review

- **Strategic Area 1: Support and promote public policies on eHealth**

At present, 21 countries and territories are formulating and adopting a public policy on eHealth: Argentina, Barbados, Belize, Bonaire, Brazil, British Virgin Islands, Canada, Chile, Colombia, Costa Rica, Curaçao, Dominican Republic, El Salvador, Guatemala, Jamaica, Mexico, Panama, Peru, Trinidad and Tobago, United States, and Venezuela.

In order to help the Member States to define policy priorities with respect to eHealth, PAHO, in coordination with the Statistical Conference of the Americas (Economic Commission for Latin America and the Caribbean, SCA-ECLAC) has led the development of Methodological recommendations for the measurement of access and use of ICT in the Health Sector to determine the advances made in eHealth in the countries of the Region of the Americas toward improving the effectiveness and efficiency of public and private health systems. Brazil and Uruguay are currently implementing these recommendations. Furthermore, PAHO has a group of experts who have acted as a technical advisory committee on when necessary.

- **Strategic Area 2: Improve public health through the use of eHealth**

PAHO has worked with the Member States to develop guidelines that serve as a baseline for a strategy to strengthen and determine basic organizational and technological infrastructure in health services.

The use of ICT can be observed in the Region's epidemiological surveillance services. However, additional research is needed regarding the number of countries using mobile technology in these services. The case of Paraguay is noteworthy, with its community epidemiological tele-surveillance system based on free software.

Unique patient identification is one of the main components for promoting the sustainable, scalable, and interoperable development of eHealth-focused programs and initiatives. The main trends in the Region indicate that the use of live birth records is the access portal to electronic health systems. At birth, a certificate of live birth is prepared in hospitals, including basic data such as name, parent names, doctor names, hospital, sex, race, date of birth and person completing the record. These certificates are then sent to local authorities in charge of preparing birth certificates.

A significant number of countries in the Region are financing projects with public funds at the local and national levels. The most widespread initiatives involve telemedicine and electronic health records. Big data and e-prescription projects continue to be a challenge for the Region, due to a lack of necessary infrastructure for development and implementation.

- **Strategic Area 3: Promote and facilitate horizontal collaboration between countries**

Interoperability in health systems within a country's various health structures continues to be a challenge for the Region, due to a lack of integration among the existing information systems. Using the experience of the European Union as a reference point for guidelines on unique interoperability with regard to patient data and electronic prescriptions, PAHO and the Member States plan to work on devising a common framework for a standard or minimum dataset to facilitate the exchange of information between systems.

- **Strategic Area 4: Knowledge management and digital literacy for quality care, promotion of training and health, and disease prevention**

There has been a considerable increase in the number of countries that have a university-level eHealth training plan.

With regard to certified public health content, PAHO's Latin American and Caribbean Centre on Health Sciences Information (BIREME) signed a memorandum of understanding with the University Hospital of Rouen (France), where a laboratory is dedicated to medical terminology and semantic relationships. This initiative will help achieve significant progress in devising a common framework for the development of portals with certified public health content.

4.2 Actions necessary for improving the overall situation

- a. continue implementing the Strategy and Plan of Action and promote the formulation of national strategies in the countries that do not have them;
- b. work to include areas where progress has been made in the framework of public health since the approval of the Strategy and Plan of Action, such as the Internet of things, open data, and big data, among others;
- c. strengthen communication and institutional coordination between agencies, donors, and Member States, including key sectors other than the health sector, in order to ensure that strategic, technical, and budgetary components are coordinated and aligned with a single objective, focused on improving the quality of life of the population, and implemented so as to avoid duplication of effort;
- d. promote the generation of evidence and development of guidelines on eHealth that favour decision-making and project development in a strategic and sustained manner;
- e. establish a road map for the role of eHealth within the framework of the Sustainable Development Goals, specifically objective 3 ("Ensure healthy lives and promote well-being for all at all ages").

5. Main PAHO eHealth projects

5.1 National eHealth Strategies

PAHO's KBR' primary mandate in eHealth is the development of national strategies.

The PAHO eHealth program is represented in category 4 of the PAHO Strategic Plan 2014-2019: Health Systems, in the "Health Systems Information and Evidence" program in section 4 under the output 4.4.2 which addresses the "Implementation of the regional Strategy and Plan of Action on eHealth" using the "Number of countries and territories implementing an eHealth strategy" as an indicator.

The countries currently working on the development of a national eHealth strategy with the support of PAHO are: Argentina, Bolivia, Brazil, Chile, Costa Rica, Cuba, Dominican Republic, Guatemala, Jamaica, Mexico, Nicaragua, Panama, Paraguay, Peru and Trinidad and Tobago.

5.2 Coordination instruments for eHealth at regional and global level

- **Laboratory on eHealth for the Americas**

The Laboratory on eHealth for the Americas is a portal that offers experiences and eHealth developments in countries in the Americas. It also offers a collection of recommended readings, tools and expert inputs to support the development of national eHealth strategies.

- **WHO Collaborating Centres on eHealth**

Create a network of Collaborating Centers on eHealth with the objective of identifying and analyzing eHealth practices to promote best practices and synergies.

To date, there are three eHealth collaborating centers: The Center for Global Health, Division of Global Health Protection, Global Health Security Branch, Systems and Planning Team Centers for Disease Control and Prevention (CDC); College of Pharmacy Center for Consumer Health Informatics Research Nova Southeastern University (USA) ; Hospital Italiano de Buenos Aires (Argentina)

- **ICT4Health Network**

The PAHO eHealth network is made up of representatives on eHealth from the member states and focal points from the country offices. This network shares strategic information about eHealth with the member states and is also used to identify experiences and provide information about regional and global activities of interest.

- **eHealth Technical Advisory Group (TAG)**

In order to strengthen the implementation of the PAHO/WHO eHealth Program, the Technical Advisory Group (TAG) will play an important role in providing PAHO with state of the art knowledge and best practices, to orient, promote and monitor the goals, best use and impact of ICT for improving public health.

The focal points for this TAG will be: infrastructure; information systems; telehealth and telemedicine; the Internet and access to information; policies; training; risk management and patient safety; unique patient identification and electronic medical registry; standards and interoperability; legal matters; eGovernment; and monitoring, analysis and evaluation.

- **Mapping of projects and specialists on eHealth**

Develop a tool to map projects and locate specialists on eHealth.

To date, the following countries have been mapped: Argentina, Chile, Peru and Dominican Republic (in progress).

- **SCA-ECLAC: Working group to define indicators for Information and Communication Technology (ICT) on Health**

In collaboration with the Statistical Conference of the Americas of the Economic Commission for Latin America and the Caribbean (SCA-ECLAC), recommendations for a methodology to measure access and use of ICT in the health sector are being developed. The objective of this project is to gather information about the access and use of ICTs in the health sector to enable the generation of consistent, comparable, current and representative statistics, which in turn will shed light on the progress made by the countries of the region with regards to the adoption of technological innovations to improve the effectiveness and efficiency of health systems.

Partners: PAHO Entities, CHA/HA; External Partners, SCA-ECLAC.

- **Framework Agreement between University of Illinois and PAHO**

A framework proposal agreement between the University of Illinois (USA) and PAHO promoting the coordination and exchange of eHealth information and data. PAHO/WHO and the National Center for Supercomputing Applications (NCSA) at the University of Illinois have an ongoing a partnership agreement to collaborate on improving public health through advanced computing. The NCSA made available its supercomputing technologies that can help analyze and visualize large amounts of public health data and solve complex problems. PAHO/WHO and NCSA explore the possibility of analyzing public health literature managed by the Latin American

and Caribbean Center on Health Sciences Information (BIREME), a PAHO/WHO specialized center.

- **CRICS 9: Reaching Universal Access to Health**

The ninth Regional Congress on Health Sciences and Health Information (CRICS9) marked a milestone in the areas of management of scientific information and technology, and their relation to eHealth. Under the banner “eHealth: Reaching Universal Access to Health”, experts shared experiences and exchanged information about programs, projects, systems and science communication and information networks on regional health. The congress convened in Washington, D.C. with PAHO/WHO and BIREME hosting the CRICS9, and over 400 people from 30 countries participating between the 22nd and 24th of October.

- **eHealth and Innovation in Women’s and Children’s Health: a Baseline Report**

ICTs play an increasingly critical role in providing health services, including for women’s and children’s health. This joint publication by WHO and the International Telecommunication Union (ITU) reports the results of the first survey to study the impact of eHealth on women’s and children’s health in developing countries. It highlights many encouraging findings including the development of national eHealth policies, the monitoring of key indicators, and the implementation of electronic information systems. Recommendations for the way forward are proposed. Never before has there been such a high response rate for a Global Observatory for eHealth (GOe) survey. This is a clear reflection that countries are now recognizing the importance of innovation through ICTs to advancing women’s and children’s health. KBR coordinated the participation of the six countries that are members of the Commission on Information and Accountability of the Americas in this report. 5 countries responded: Bolivia, Guatemala, Haiti, Mexico and Peru.

5.3 Standards and Interoperability

- **Report on the Regional Technical Consultative Meeting on eHealth Data Standardization and Interoperability**

PAHO convened this Regional Technical Consultative Meeting in Peru from 23 to 24 April 2013. Participating countries: Barbados, Chile, Colombia, Costa Rica, Jamaica, Mexico and Peru. The objectives and expected outcomes on eHealth standardization and interoperability according to WHO’s vision were presented, as well as its key messages.

The following conclusions were agreed upon at the forum:

- The financing of long term projects is the main challenge at a national level;
- Having qualified human resources to work on eHealth topics is essential at a regional level;
- The maintenance of interoperability over time, including standardization and structure of information is a major challenge;
- A server that makes clinical terminology and common dictionaries available is needed;
- Lack of progress is attributed to the paucity of policies developed, the fractioning of information systems and the semantic aspects of interoperability;
- Communication is key for the socialization process and the Exchange of experiences at a regional level.

5.4 Telehealth

- **Virtual Clinical Learning**

The purpose of the Virtual Clinical Learning is to provide methodological and technological tools of e-learning for clinical skills development teams (doctors and nurses) in indigenous areas of difficult access in the Americas. This project is part of the Virtual Campus.

Main services: Ask the Experts; Second opinion consultation clinic for teaching; Discussion of clinical cases; Image Gallery: Rx, ultrasound, computerized tomography (CT), electrocardiography, skin, among other; and Information Services: magazines, textbooks and other literature of clinical interest.

The coordination of the study “Mapping use of ‘Educative-Telemedicine’ in Latin-America” in collaboration with the Department of Health Systems and Services (HSS); Supported the implementation of this project in the province of Jujuy, Argentina.

- **Desarrollo de la telesalud en América Latina**

Participation in ECLA’s publication “Desarrollo de la telesalud en América Latina: aspectos conceptuales y estado actual” (developing eHealth in Latin America: concepts and current state).

This document was based on the activities developed in the Regional Course on Telehealth which was part of a project by the Alianza para la Sociedad de la Información (Alliance for an information society), developed by ECLAC and the European Union.

Partners: Economic Commission for Latin America and the Caribbean (ECLAC).

- **Workshop on Telehealth Policies in LAC**

In collaboration ECLAC, KBR organized the Workshop on Telehealth Policies in Latin America and the Caribbean (LAC). This workshop was attended by the following countries: Brazil, Colombia, Ecuador, Mexico, Peru and Uruguay.

Partners: ECLAC.

5.5 mHealth

- **Be He@lthy, Be Mobile**

This initiative is a unique joint project between the UN health and telecommunications agencies to use mobile technology, in particular text messaging and apps, to help member states combat the growing burden of non-communicable diseases (NCDs). Mobile phones have already been successfully used in different health fields, improving access to health services, training health workers, and assist individuals to manage their diseases. They are also extremely cost-effective. A number of countries have also used mobile technology to monitor and control NCD risk factors. This initiative will take successful pilots to the world stage through a global UN, private sector and government partnership dedicated to providing mobile solutions for NCDs.

This project is currently being implemented in Costa Rica.

External Partners: ITU.

- **Mejorando la salud materna en la República Dominicana con Tecnologías de Información y Comunicación y estrategias de igualdad de género 2013-2014**

Project to improve maternal health thanks to ICT and gender equality strategies in the Dominican Republic 2013-2014

This Project aims to improve access to current information about prenatal care for women in the Tres Brazos neighborhood in Santo Domingo, through the training of health professionals and the creation of a network of women. This initiative aspires to link technology with simple methods for providing messages to women about prenatal care in a way that respects their independence and promoting their empowerment in determining their own health. The design for the cell phone messages will be carried out with experts from various disciplines including health care professionals, clinicians, social communicators, and groups of women. It is hoped that an alliance with the Ministries of Public Health and of Women as well as other key entities will be established.

- **Plataforma de integración tecnológica para el registro, vigilancia y alerta de enfermedades de notificación obligatoria (Chile)**

Platform for technical integration for the registration, attention and alert for mandatory notifiable diseases.

The Project aims to create a hardware and software system destined for Communicable Diseases of Obligatory Notification.

External Partners: Universidad de Valparaíso (Chili)

5.6 Digital literacy

Digital literacy is the set of skills, knowledge, and attitudes that a person needs in order to develop functionally within the Information Society (PAHO definition).

- **Curso Virtual Acceso a Fuentes de información y Manejo de Redes Sociales**

Virtual Course Access to Information Sources and Management of Social Networks

The objectives of this course involve the identification, use and diffusion of the best available knowledge on information sources in health sciences. The purpose of this course to promote the adoption of theoretical knowledge and fundamental practices in knowledge and social media management for health. The most important being: to acquire the fundamental concepts and principles of scientific information; to have access to and manage the main sources of health science information; to master information search and recovery methods; and to formulate and develop relevant search strategies.

Partners: Universidad de Brasilia (Brasil); Universidad de Salamanca (Spain); Biblioteca Nacional de Ciencias de la Salud del Instituto de Salud Carlos III (Spain); Universidad de Alicante (Spain); Universidad Miguel Hernández y Hospital de Torrevieja (Spain).

- **Digital Literacy Program**

A PAHO/WHO work program to strengthen knowledge and attitudes needed to be able to function efficiently in the Information Society. The aim of this program is to have health workers trained in the use of ICT's and interconnected Public Health institutions with access to relevant and time-sensitive information for evidence-based decision making. The objective of this program is to build capacity and strengthen competency levels of individual health workers and the networks at the province of Mendoza's Ministry of Health (Argentina); this would be achieved by providing training in ICT and knowledge management methods used in health sciences and the health care system.

A conceptual model of the program has been developed and a pilot project has been launched in Argentina.

- **Guide “Prevención del VIH a través de las nuevas tecnologías de la información y la comunicación”**

HIV prevention through ICT

This guide attempts to provide a panoramic view of the new technological scene and its potential. This guide was compiled by an interdisciplinary work group composed of professionals from associations and public institutions. This guide describes how ICTs are becoming incorporated into society, the health sector and more specifically HIV.

Partners: Ministerio de Sanidad (España)

- **The Public eHealth Innovation and Equity in Latin America and the Caribbean (eSAC) project**

The Public eHealth Innovation and Equity in Latin America and the Caribbean (eSAC) project aims to contribute to the improvement of the health and well-being of marginalized population groups in the region, and to advance health equity, through the development and application of ICT-based solutions in public health. The project is funded by the Ottawa-based International Development Research Centre (IDRC) (Canada) and jointly designed and implemented by PAHO, Washington DC (USA), and the People, Health Equity and Innovation (Phi) Research Group at the University of Toronto (Canada).

- III -

Current state of eHealth implementation in PAHO members

In 2015, the data from the results of the WHO's Third Global Survey on eHealth was analysed by PAHO to establish a report on the state of eHealth implementation in the Americas¹.

Below are the key findings from this report.

6. Key PAHO data from WHO's Third Global Survey on eHealth

6.1 Bases for eHealth

- 77.8% of PAHO Member States in the Region of the Americas indicate that they have a national policy or strategy for universal health coverage.
- 61.1% of PAHO/WHO Member States in the Region have a national eHealth policy or strategy.
- Of the Member States that have a national policy or strategy for universal health coverage, only 52.6% have a national eHealth policy or strategy.
- 84.2% of Member States reported that they have a policy or strategy for a national health information system (HIS).
- 84.2% of Member States offer education or training on the use of ICTs and online health.

6.2 Electronic Health Records (EHR)

- 52.6% of PAHO Member States in the Region of the Americas have a national DHR system.
- 26.3% of Member States have legislation that supports the use of their national DHR systems.
- e lack of funding to develop and support DHR programs and the lack of evidence regarding the effectiveness of DHR programs appear to be the most common obstacles, with 73.7% of Member States reporting such problems as "very important" or "extremely important" barriers to the implementation DHR.

6.3 Telehealth

- 36.8% of Member States have policies or strategies directly related to telehealth.
- 89.5% of Member States use teleradiology.
- 57.9% of Member States use remote monitoring of patients.
- 42.1% of Member States use telepathology services.

6.4 mHealth

- 57.9% of the countries have government-sponsored mobile health programs.
- 73.7% of Member States have no entity responsible for regulatory supervision of mobile health to ensure the quality, safety, and reliability of applications.

¹ eHealth in the Region of the Americas: breaking down the barriers to implementation

- 92.8% of mobile health programs are more frequently present at the local and intermediate levels, while only one program is most frequently present at the international level, namely, the mobile health program of telephone care centres.

All of the countries report having the 14 programs (telephone health care centres/telephone health assistance line; free emergency telephone services; compliance with treatment; appointment reminders; community mobilization campaigns/health promotion; mobile telehealth; emergency services; health surveys; surveillance; patient monitoring; access to information, resources, databases, and tools; support systems for clinical decision-making; digital information on patients; and mobile learning, or mLearning), except for one case, in which there are no support systems for clinical decision-making.

More than 50% of the countries have fully established 57% of the programs; the program with the least stable implementation is the support for decision-making program, which is implemented and stable in only 26% of the countries.

- Few Member States (10.5%) have government-sponsored programs for the evaluation of mobile health.

6.5 Virtual learning in the health sciences

- 89.5% of Member States use virtual learning in training health sciences students.
- 94.7 6% of Member States use virtual learning for on-the-job training of health professionals.
- 78.9% of the Member States reported that their main reason for using eLearning with students is that it improves access to content and to experts, while 52.6% cited as the main reason that it provides access to education where learning facilities are limited.

6.6 Legal frameworks for eHealth

- 63.7% of Member States have legislation protecting the privacy of health-related data on individuals that is stored electronically in DHR.
- 57.9% of Member States lack legislation facilitating people's electronic access to their own health data in DHR.
- 36.8% of Member States reported that their legislation gives people the right to specify what health-related data in DHR can be shared with health professionals whom they designate.
- 47.4% of Member States have policies or legislation defining medical jurisdiction, responsibility, and reimbursement for online health services.

6.7 Social media

- 73.7% of Member States reported that individuals and communities are using social media to learn about health problems.
- 100% of Member States reported that health care organizations are using social media to promote health messages as part of health promotion campaigns.
- 78.9% of Member States lack a national policy or strategy on the use of social media in the health professions.

6.8 Big data

- 31.6% of Member States have a national policy or strategy regulating the use of big data in the health sector.
- 10.5% of Member States have a national policy or strategy regulating the use of big data by private enterprises.

7. Key recommendations for PAHO members

7.1 Bases for eHealth

- New eHealth guidance is needed, going beyond establishing national policies and strategies for universal coverage and moving from policy to implementation. eHealth should be seen not as a set of specific isolated practices, but rather as a system composed of a broad set of dimensions (a holistic model) that transcends traditional temporal sequences. It requires constructing an aggregate model (a framework for implementation) that includes both the set of systemic practices in eHealth and the different explanatory dimensions of eHealth beyond technological considerations (personal, educational, economic, organizational, social, cultural, and institutional factors), and that do not follow a uniform or sequential pattern.
- Member States are urged to move forward in supporting (particularly through funding) new strategies in eHealth that go beyond establishing national policies and strategies. Public-private collaboration is essential to overcome funding barriers. The creation of national partnerships involving different sectors (civil society, civil service, and private organizations), through establishing national eHealth commissions or committees, could become an effective strategy for mobilizing the resources needed to adopt and implement eHealth strategies.
- National policies and strategies must be accompanied by rigorous evaluation mechanisms and economic and financial procedures (of a legislative nature) that incorporate analysis of the cost-effectiveness (for design, as well as for implementation and evaluation) of eHealth practices.
- More emphasis must be placed on professional learning, the organizational dimension, and the new role of the individual as an empowered patient, or e-Patient). eHealth only increases results if combined with specific training and with new practices for organizing work and managing human resources.

7.2 Electronic health records (EHR)

- Promoting the sustainable, scalable, and interoperable development of EHR-centred programs and initiatives requires that the development of national EHR systems be approached in the framework of a patient-oriented national online health strategy, one that includes a system for unique identification.
- This requires national legislation to appropriately govern EHR systems and their use, and to improve organizational and technological infrastructure, as well as access to information.
- Patient input should be considered in developing the EHR system.

7.3 Telehealth

- National strategies and policies must be developed to highlight potential modes of intersectoral collaboration involving the health and social spheres.

- Uniform interoperability of health systems continues to be a challenge for the Region, due to a lack of integration among existing information systems.
- The construction of an aggregate model (a framework for implementation) is needed that includes both the set of systemic telehealth practices and the different explanatory dimensions of telehealth beyond strictly technological issues.
- Greater attention to cost-effectiveness analysis in the design, implementation, and evaluation phases of telehealth projects, as well as greater consideration of the particular economic characteristics of these services (high fixed costs and marginal low costs, experiential goods, and network externalities), could greatly increase effectiveness in establishing networks for public-private collaboration.

7.4 mHealth

- Member States should address the issues of responsibility, licensing, and informed consent through policies and laws relating to mHealth.
- Each Member State should have an official body responsible for overseeing mobile health regulation; establishing guidelines on data ownership, safety, and privacy; regulating the quality, safety, and reliability of mobile devices and so ware used in delivering medical care; and promoting the training of health professionals, as well as informing patients and citizens on the benefits of using mobile health solutions.
- All principal stakeholders should follow the lead of international cooperation schemes in developing regulations, policies, and best practices for the use of mobile health solutions.
- Each intervention carried out in a local, national, regional, or global context should be evaluated, so as to generate findings.

7.5 Virtual learning in the health sciences

- Training plans that provide adequately for eHealth innovations should be created, reflecting the inevitable changes in the roles of health professionals, and providing training in new disciplines through the academic curricula of health sciences educational institutions.
- Member States are urged to create incentives for online learning as a part of health sciences education and continuing education for health professionals.
- Educational authorities should conduct a systematic evaluation of online learning programs in order to ensure that they are appropriately adapted and developed.

7.6 Legal frameworks for eHealth

- Member States are urged to have national legislation on regulatory issues involving health as related to digital formats, such as: data protection; privacy and confidentiality of data and individual patient rights; and matters concerning responsibility for data.
- • Training programs are needed that ensure that professionals are fully aware of what is required to comply with regulations on health-related activities and digital data.
- Awareness among patients of their rights and responsibilities should be facilitated.

7.7 Social media

- Member States are encouraged to create clear guidelines on the use of social media, in order to promote a positive impact on the medical profession as a whole and on public confidence in the health system.

- National policies or strategies on the use of social media in the evidence-based health professions should be developed. Also needed are educational programs designed to help health professionals understand the potential of social media and virtual communities in supporting such policies and strategies, as well as in the acquisition and management of new knowledge and the development of computer skills. Incentives could be created for health personnel to incorporate social media in health promotion efforts.
- Programs should be in place to promote societal knowledge regarding the use of social network-based health programs. A culture of self-care, supported by the use of social media, can become a means of generating broader and better coverage for health promotion programs, and of inculcating in users a sense of responsibility regarding health information, circulated through social media.
- Existing regulations in the Member States should also be updated to coordinate the use of technology health programs' preventive approaches; to encourage open dialogue between patients and information providers with regard to health information acquired through social media and via the Internet; and to ensure that technological infrastructure in the developing countries is capable of providing greater access to information for the population (especially in vulnerable areas).

7.8 Big data

- In collaboration with ministries of health, ministries of justice, and data privacy regulators, the Member States should take the lead in addressing governance issues as they relate to data at the national level, specifically with regard to data privacy and protection.

Member States need to create and implement policies regulating the use of large volumes of health-related data, both in the health sector and in the private sector, while promoting funding options for scientific research.

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Potential for cooperation

8. Main domains and axes for exchanges and cooperation

PAHO is a key actor in the Latin America zone. It launches, organizes and follows eHealth programmes and projects with voluntary members and with partners, especially European countries and the EU. Indeed, there are closer links:

- from history and language with Portugal and Spain, which are Observers States
- with those countries which are PAHO members since they are present in Guyana, France, the Netherlands, United Kingdom

Relations with the EU are numerous. Apart from participation in many projects, working groups and permanent agreements exist on key domains as ICT penetration indicators, knowledge, education, mother and child projects (*see above*).

The experience of the EU for guidelines on unique interoperability with regard to patient data and electronic prescriptions is a reference point for PAHO.

- European Commission; eHealth Network. Guidelines on minimum/nonexhaustive patient summary dataset for electronic exchange in accordance with the cross-border Directive 2011/24/EU. Brussels: European Commission, eHealth Network; 2013
- European Commission; eHealth Network. Guidelines on ePrescriptions dataset for electronic exchange under cross-border Directive 2011/24/EU [medicines and medical devices]. Brussels: European Commission, eHealth Network; 2013.

Important PAHO programmes and projects have been briefly described in Chapter 5 of this document. They are clearly a privileged way to understand evolution of eHealth in the Latin America zone. General programmes offer rich opportunities for participation. Specific projects are an important and sometimes mandatory gate to support country ones or participate. In all cases, defining level of cooperation will imply to identify PAHO and eHN MS already participating in the project or group.

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Main sources

All documents are produced by PAHO. See <http://iris.paho.org/xmlui/handle/123456789/31286>

eHealth in the Region of the Americas: breaking down the barriers to implementation

158th Session of the Executive Committee

PAHO Program and Budget 2016-2017

eHealth Conversations - Using Information Management, Dialogue, and Knowledge Exchange to Move Toward Universal Access to Health

Strategy and plan of action on eHealth: Midterm review