

Panoramic view of the incorporation of information and telehealth technologies in El Salvador

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Abstract

Introduction: the article presents an overview of the incorporation of telehealth and information technologies resources in El Salvador, starting at the analysis of the available documents. Method: The found material was organized in 3 analytical and discussion topics. Results and Discussion: It is in course in the country a proposal to reform the health system anchored in the process of incorporation of the TICs and with significative results although the available infrastructure. In the telehealth area advance is not so significative.

Keywords: Information and Communication Technologies in Health; Telemedicine; Telehealth; Health Policies.

Resumen

Panorama de la incorporación de la información y tecnologías de telesalud en El Salvador

Introducción: El artículo presenta un panorama de la incorporación de los recursos de telesalud y tecnología de información en El Salvador, a partir de la análisis de los documentos disponibles. Método: El material encontrado fue organizado en 3 tópicos de análisis y discusión. Resultados y Discusión: Está en curso en el país una propuesta de jubilación del sistema de salud atracado en el proceso de incorporación de TICs y con resultados significativos a pesar de la infraestructura disponible. En la área de telesalud el avance no es tan significativo.

Palabras-clave: Tecnologías de la Información y Telecomunicación en Salud; Telemedicina; Telesalud; Políticas de Salud

Resumo

Uma visão panorâmica da incorporação de tecnologias de informação e telessaúde em El Salvador.

Introdução: o artigo apresenta um panorama da incorporação de recursos de telessaúde e tecnologia da informação em El Salvador, a partir da análise documental disponível. Método: o material encontrado foi organizado em 3 tópicos de análise e discussão. Resultados e Discussão: está em curso no país uma proposta de reforma do sistema de saúde ancorada no processo de incorporação de TICs, com resultados significativos apesar da infraestrutura disponível. Na área de telessaúde o avanço não é tão significativo.

Palavras-chave: Tecnologias da Informação e Comunicação em Saúde; Telemedicina; Telessaúde; Políticas de Saúde.

Introduction

El Salvador is the smallest country in Central America, with 21.040 Km², making borders with the Pacific Ocean, to the south, with Guatemala to the west and Honduras at east. Its eastern region is in the coast of the Gulf of Fonseca, in front of Nicaragua. In 2018, its population is of 6.375.000 of people, with a life expectancy of 74 years. Infantile mortality was of 12,9 per 1000 in 2016 and maternal mortality was of 81 for 100.000. In 2014, the IDH was of 0,67 and the medical expenses represented 6.8% of the GIP, applied mainly in the public area¹.

The health system is in a process of reforms, focuses in the structuring of primary attention. The process of incorporation of information and communication technologies is one of the strategic axes of development of the reform in course in the country.

Method

Some stages for elaboration of this article had been covered. Initially, the referring telehealth documents as well as information and communication technologies in health involving legislation related specifically to telehealth and the

incorporation of information and communication technologies in El Salvador, since 2010; the analysis of the scientific articles published about telehealth and information technologies in El Salvador since 2010, and the analysis of technical reports and presentations in congresses in the area of telehealth and information technologies, allowing the access to documents about telehealth and information and communication technologies available in the Ministry of Health website.

To contextualize the emergence of telehealth projects and incorporation of information and communication technologies project, articles, technical reports, laws, standards and resolutions were collected, in addition to manuals and reports from the Health Ministry from El Salvador that are responsible for the formulation, legislation and implementation of health policies present in the country.

Afterwards, the collected material was structured in three main topics: National Health System; historical background; construction of the National System Integrated in Health and the structuring of the information and communication technologies and telehealth areas in El Salvador.

Results and Discussion

National Health System: historical background

The configuration of El Salvador's national health system enrolls in the milestone of the prudential hegemony until 2009. However a series of initiatives caused by the social polarization allowed the structuring of the national health system.

According to OPAS², "between 1998 and 1999 a dynamic period of the generation of initiatives can be seen as being clearly opposed, as the reflex of the political polarization of El Salvador's society; in the way, while the National Health Commission (CONASA) obtains a Presidential Decree that plants the establishment of a mandatory general insurance, with private insurance and provision, and the advisory role of the Ministry of Public Health - MSO to the National Health Council, diametrically directed to the opposite side of the El Salvador Institute of Social Security (ISSS) Servers Union and other actors propose a Model of Social Protection to El Salvador, with the ISSS' protagonism as insurer, funding entity and main service provider, complementing the private providers with and without profit motives; the MSP's rectory without provision, in addition to measures to improve the social security's funding". In the year 2000, the Integral Health Reform Proposal started to take shape, arising as a product of negotiation between the government and the medical syndicate.

In the year 2000 the Republic Presidency presents a proposal of "Democratization of the Welfare System in Health", centered in the public health service delivery. The proposal launches a wide mobilization of organizations that ended with the "National Commission of Monitoring the Integral

Health Reform Proposal" that acted from 2003 to 2007².

Three laws are approved in the period: the creation of FOSALUD (Solidary Fund for Health - that establishes funding and management mechanisms of programs for the conservation of public health and social assistance, being funded by taxing alcoholic drinks and cigarettes, as well as the Gun Control) in 2004, from the Basic System of the Integral Health, approved in 2005, bestows support to the organization and management of health services in the MSPAS in local level, with emphasis in the first level of attention and creates Regional Health Leads².

The national health system in El Salvador was created by law in 2007³ having as goal the compliance of the constitutional guarantee of access to the health services, as a social right of all the territory's inhabitants and has as distinctive characteristics the humanism, respect to the system user, warmth, universality, equity, solidarity, subsidiarity, quality of access, completeness, effectiveness, efficiency, opportunity and social participation.

The following goals are highlighted:

- a) Develop an attention model based in a family health approach that emphasizes the promotion in health and the prevention of the risk and damage of the individual, the family and the community
- b) To reach a bigger coverage and bigger levels of attention in health to the entire population from El Salvador, in conditions of efficiency, effectiveness and equity in the provision of the services and due to the populations' necessities
- c) To reduce to the minimum the inequalities in the health levels that persist in different regions and social groups of the country
- d) Destinate primarily in each tax period according to the financial and taxing availability of the State, the necessary economic resources for the budgetary allocation in health to adequate the population's necessities
- e) To promote that the access to the health services is based in the principles of equity and solidarity
- f) Achieve the satisfaction of the users, respecting their rights and values

In 2008 its regulation is published in which it is affirmed that it is intended to construct a model of integral attention, based in family health, prioritizing the risk prevention, promotion, healing and rehabilitation actions⁴.

Constructions of the National Integrated Health System

In 2010, El Salvador started to count with a National Integrated Health System, having 8 priorities: the construction of the Integral and Integrated Health Services Network from the Ministry of Health; the construction of a National System of Medical Emergencies; in response to the need of medications and vaccines; progressive articulation with Social Security and other public servers and the fortification of the

Intersectoriality; support to the National Health Forum; the creation of the National Health Institute; development of a Unique Planning and Health Information System and human resources in health as cornerstone of the Integrated Health System.

During this period, according to OPAS², a health policy that clearly planned to recover the state's role in the respect of health, in front of the "prolonged and deliberated dismantle of the Public Health System..." and to explicitly reject the capitalization of health, considering it a public good and fundamental human right, resulting from the interaction of socio-economic, politic, biological, cultural, demographic and environment determinants that conduct to a total human fulfillment, with long, healthy and productive lives".

The policy applies the fortification of the community organization and the social participation, proposing the construction of a real integrated National Health System, with coverage and universal access, based in the Primary Care of Integral Health and appropriate allocation of functions by government levels to carry out the intersectoriality: "The National Health System, based in the Primary Care of Integral Health will provide universally through the public service network, a group of features whose number and quality will progressively tend to completeness". The vision includes "...regulate and increment the effectiveness, efficiency and quality of hospital levels, as relevant component of the integrated service network from the National Health System⁵".

El Salvador's health system has two sectors, the public and the private one. The public sector includes the Ministry of Public Health, the El Salvador Institute of Social Security (ISSS), the El Salvador Institute of Rehabilitation to the Disabled (ISRI), Military Health, the El Salvador Institute of Teachers' Welfare, and 0,6% by Military Health⁶. The security of the private sector is calculated to provide only 0,3% of the coverage of health services⁷.

The Ministry of Health is currently structured in an integrated health module of various levels of attention, by the Integral and Integrated Health Services Network (RIISS)⁸. It is divided in 3 levels: superior, regional and local. The superior level is responsible for implementing the National Health Policy. The regional level is responsible for managing and for its social associates and its focus is more to the implementations and monitoring of activities. The Basic Integral Health System (SIBASI) operates at local level together with Community Family Health Units (ECOS-F) and the Community Teams of Specialized Health (ECOS-E). In the local level, the personnel is responsible for the implementation and monitoring of the programmatic components, but also must specifically work with the community to adapt the interventions and services to the local context⁹.

In the rural area, the ECOS-F provide attention to around 600 families or 3.000 individuals and it is composed by a doctor, a nurse, a nursing auxiliary, 3 health promoters and a multipurpose. The composition of the personnel is identical to the urban ECOS-F with the difference being that the num-

ber of promoters are double; these groups are responsible for the attention of approximately 1,800 families or 9,000 individuals⁸.

The number of families and individuals attended by each ECOS-E is different: 6,000 families with the average of 30,000 people in rural areas and 8,000 families with an average of 40,000 people in urban areas. The ECOS-E personnel consists of a pediatrician, an obstetrician-gynecologist, an internist, a nurse, a nursing auxiliary, three dentists, a physiotherapist, two lab technicians, a health professor, a statistical auxiliary and a driver. In addition to that there is a psychologist and a nutritionist for each ECOS-E both in urban and rural areas⁸. The goal is to get to 1,598 Family ECOS and 142 Specialized ECOS.

In addition to the ECOS, the level of primary care also includes the health services that are below the management of the Community Units of Family Health: Home of Maternal Waiting House and of Rural Centers of Nutrition and Health (CRNS)⁸.

In 2013, a document from OPAS⁹ affirms that El Salvador started to present an important increment of the total number of establishments in the first level of attention, going from 337 (2009) to 692 (2012).

These investments answer to the principle of equity and are accompanied by an increment of the efficiency and production of services. At country level it is seen a raise in the density of human resources in health (RHUS) from 12,2 to 19,4 for each 10,000 inhabitants, from the year 2009 to the year 2012. However, in the municipalities with higher percentage of extreme poverty, it is seen a general raise in the density of human resources excelling Ahuachapán, Cabañas and Morazán, historically excluded⁹.

In this document⁹ it is affirmed that in the year 2009 the voluntary quota was eliminated, a kind of co-payment identified as access barrier, especially to the families with low income. This cabinet decision has as result an immediate increment in the attention demand. A second increment can be identified in the attention demand since 2010, especially in the first level, which coincides with the implementations of the Integrated Health Services Network.

OPAS yet affirms that as hospital level, the biggest investment was directed by the rehabilitation and infrastructure reposition, majorly affected by the earthquakes from 2001 and by the obsolescence of its equipment, without increment in the total number of beds. In spite of him, an important raise in the hospital egresses is produced.

Also a FUSADE's¹⁰ document affirms that it has been recognized by everyone - even by the most critical - that the ECOS introduction incremented the population's access, particularly the poorest. The document notes that the existence of 3 great initiatives: fee free policy and the significant increment of the funding of the national budget; innovative addition to the module of primary attention and medications and vaccines law. Also focuses in the necessity of relating the results to hospital admissions as well as with other management modules.

It is important to highlight anyway that the growing sector of features and coverages in the MINSAL, according to OPAS⁹, didn't have, generally, a similar correlact in the rest of the institutions of El Salvador Health Systems; Effectively between the year of 2005 and 2012, the percentage of increment of preventive and healing attentions from the MINSAL (including FOSALUD) was of 20,5%.

Other document from 2015¹² from El Salvador's Ministry of Health affirms that important advances in the First Level of Attention have been made, with a total of 573 Community Family Health Groups and 747 Communitary Units of Familiar Health. There has also been advances in the coverage of the Expanded Immunization Program (PAI) and the Plan of Integral Attention of Chronic Diseases has commenced. It is counted already with a policy and a National Plan of Integral Attention to Cancer.

In this context, significative advances towards the universal health coverage in El Salvador have been observed, based in the structuring of a public health system that since 2010 has advanced in the system's structuring, particularly in the primary care.

The structuring of information and communication technologies and telehealth areas in El Salvador

Before 2010, El Salvador made a technological effort with the new project "Health Channel" that was implemented with the support of the Pan American Health Organization/World Health Organization (OPS/OMS) in five health regions, to the realization of videoconferences, but this was discontinued¹².

In an article from 2010, when situating telehealth's place in the context of the national integrated health system it was affirmed since october 2010 that the Ministry of Health¹² was constructing a telehealth project.

In the matter of the BID project - regional protocols for the elaboration of telehealth policies for Latin America¹³, the Ministry of Health affirmed that the experiences are limited to the use of communication technologies between different levels of provision, by mobile telephone services to coordinate processes of teleconsults related to the reference of cases in american hospitalization. The project was in structuring process.

However, some telehealth initiatives in this period can be identified. The State University from El Salvador developed some experiences in Dentistry, carried out long distance courses from specialists from the pediatrics hospital to health deconcentrated regions and in the medical residency program; in the Maternity hospital the basic long distance course about investigation was held. Also in the Rosales Hospital and in the Medical College conferences are recorded for the medical use of social services which are hung in the websites of both institutions to consult by different audiences. The CIES (Chapter El Salvador), also holds web conferences, acting particularly in the rural area^{12,13}.

In the matter of the Ministry of Health in 2010 a interdisciplinary work group was created, that carried out a diagnoses and proposed the implementation of various projects both of formation and consultancy to the family groups in the telehealth area. For this, the development in national level of a platform with free software that would allow easier intercommunications between the different establishments was initiated. It was necessary the acquisition of equipments¹².

It is observed the group of proposed activities in the area of telehealth, which was effectively implemented were the realizations of the Teleconference since 2014. In the chart 1 below, the weconferences themes are listed, carried out in the year 2014,2015 and 2016¹⁴.

Chart 1 - Themes and dates of teleconferences realized by the Minity of Health in El Salvador - 2014/2016

2014	2015	2016
Amicable service strategies for teenagers November 18th 1:30 pm	New alert on zika virus December 3rd, 2015	Presentation unique birth identification code December 20th, 2016
Oral health November 1:30 pm	Infirmary ward model for continuous care September 16th, 2015	Breast benign pathology December 2nd, 2016
Preventing infections acquired in the health system October 23rd 1:30	Law for the promotion, protection and support of breastfeeding September 16th, 2015	Diabetes mellitus' complications November 23rd, 2016
Update in the clinical management of hypertension October 14th 1:30	Polio vaccine - update and introduction to parenteral vaccine (ivp) August 28th, 2015	Isolation of multiresistant bacteria in el salvador November 11th, 2016
eye care and preventing avoidable blindness october 7th 1:30 pm	eye care and ocular refractive errors july 28th, 2015	management and transportation of laboratory samples november 11th, 2016
growth and development in 5-year-old boys and girls september 10th	dengue management july 15th, 2015	prioritized cancers in el salvador october 26th, 2016
the ebola virus disease august 26th	multiple sclerosis may 29th, 2015	humanized birth october 21st, 2016

integral attention of older adults august 19th	preparation for the investigation and control of measles outbreak in el salvador, year 2015	breastfeeding and medications october 20th, 2016
newborn care july 15th	guidelines to come into play in the determining factors of child mortality january 27th, 2015	getting to know breast cancer october 19th, 2016
guidelines for people with suicidal ideation and intention 1st of july		getting to know breast cancer october 19th, 2016
diagnosis and management of pneumonia in boys and girls under 5 june 24th		cancer october 12, 2016
information about the chikungunya virus june 18th		uvi and pregnancy october 07th, 2016
acute fatty liver in pregnancy june 18th		how to address the alcohol and drug consumption with teenagers and their families september 29th, 2016
frequently asked questions in the management of heart disease during pregnancy june 13th		premature membrane rupture september 23rd, 2016
update in the clinical management of diabetes mellitus		how to detect the suicidal conduct september 22nd, 2016
surgical procedure: breast reconstruction june 10th		premature childbirth approach september 09th, 2016
surgical procedure: breast reconstruction june 9th		thromboprophylaxis august 26th, 2016
health assistance for battered women june 3rd		intrauterine device (iud) august 12, 2016

surgical gyne-oncological procedure: exploratory laparotomy plus biopsy by freezing by ovary tumor may 23rd		integral attention of victims of human trafficking july 28th, 2016
freezing by ovary tumor may 23rd		
teenagers' clinical history may 6th		partograph july 22nd, 2016
dengue's clinical management and the approach of dengue's social determination march 25th		traffic accident prevention and health july 21st, 2016
measles and german measles eradication february 6th		healthy lifestyles in the prevention of the ecnt july 12, 2016
		diabetes and pregnancy july 08th, 2016
		geriatric valuation in the first level of attention june 30th, 2016
		ectopic pregnancy may 06th, 2016
		milk banks' and collecting centers' national network april 29th, 2016
		teenage pregnancy reduction scheme april 22nd, 2016
		breastfeeding and the use of medications april 15th, 2016
		approach of pediatric emergency care in the riiss april 08th, 2016
		rational use of antibiotics march 17th, 2011
		zika and pregnancy march 10th, 2016

		glucose disorders in newborns march 03rd, 2016
		preeclampsia february 25th, 2016
		neonatal hyperbilirubinemia management february 18th, 2016
		open forum update on zika, health implications and other viral diseases february 15th, 2016
		medical eligibility criteria february 11th, 2016
		management of liquids and hydro electrolytes disturbances in pediatrics february 04th, 2016
		bacterial vaginosis management january 28th, 2016
		zika and the possible association with guillan barret january 22nd, 2016
		immediate attention of newborns after birth january 21st, 2016
		active and healthy aging january 19th, 2016
		high risk reproduction consultation january 14th, 2016
		the habit of family economy and budget february 23rd, 2016

Source: Ministerio de Salud Publica, El Salvador (free translation: Public Health Ministry, El Salvador)

As for the area of information and communication technologies - TIC, by the resolution 91 of 2010 from the Health Ministry, the TIC direction was created, whose function is

computer science equipment administration and communications as well as the planning and development of solutions for the system of strategic information and quality in health of El Salvador¹⁵. Already in April of 2010, a commission was created that possessing delegation to center the development of the set of existing systems in the MINSAL, through a ministerial agreement, of form to articulate them in the perspective to guide them for necessity of use of softwares free in the process of development of new softwares¹⁶.

In 2011, from the technical alignments for the maintenance, administration and development of information technologies¹⁷, the TIC directory has as goals to establish the criteria for the needed responsibilities to guarantee the good performance and the sustainability of the TIC and MINSAL platforms. It also has the following specific goals:

- Standardize de maintaining processes from the computing teams that compound the infrastructure of the sanitary establishments from MINSAL
- Establish the process to the administration, analyze and support of the different information systems
- Regulate the use of voice and data available digital services to the users, both through the internet and intranet

Its application scope is wide and involves the fulfillment of the present technical guidelines for all the personnel the use information and communication technologies in sanitary establishments from MINSAL¹⁷.

It is observed that the TIC board had by its standardizations, possibilities of structuring an information system with uniqueness in the national plan.

In documents from the Ministry of Health from 2015, TICs boards affirms that the process of implementation in different modules from the Unique Information Health Systems (SUIS) continues without pause. The SUIS constitutes an element of the innovation and update for the MINSAL, for the rest of the actors from the health system in its service network for the population in which requires health information.

The SUIS is based in free software, according to the ministerial agreement 219 from march 19 2010 and the technical guidelines from the active MINSAL. The document affirms that the acquisition of equipment from the server to sustain all computing platform from MINSAL, particularly the necessities driven from the implementation of the Integral Attention to the Patient System (SIAP) by the formation of the unique expedient.

TICs board affirms¹¹ that with the personnel stabilization, there remains guaranteed the development and maintenance of the nucleus of software of the SUIS, including the enlargement and creation of new applications, the administration and servants' monitoring and telecommunications, as well as of the agile and expert provision of the needs for technical support like trainings, installation and preventive / corrective maintenance to the whole acquired computer

equipment (almost 11 000 offered assistance) and the installation of local networks of information insaniary establishments and administrative dependences (1110 points in 2014).

It is also affirmed that it continues to the relation of mutual support established with the School of System engineering computer programmers of the University of El Salvador. One of the most excellent products of this alliance is the development of the system digital imaging integrated to the SIAP, which will allow to implement completely a RIS-PACS completely based on free and free software that will optimize the capacity of investment in the team and will avoid expenses in exclusive services. This process was increased for the Central American University José Simeón Cañas(UCA).

It is affirmed that in telecommunications terms it is evolving¹, surpassing of 25 % of coverage with insufficient bands to have a coverage of 35 % of our dependences with a band not lower than 1 Mbps. These keep on being firm steps to expire with the goal of achieving the full connectivity.

Below, in chart II, the main modules of SUS, its mains characteristics and results.

Chart II. Main modules of the unique health system, supported structure and characteristics and/or results

SUPPORTED STRUCTURE	MODULE THE COMPUTER SYSTEM	CHARACTERISTICS AND/OR RESULTS
First Level of Attention	Information System of Family Sheets (SIFF)	Planning, analysis of the population's health situation and the following of the service network, identification and evaluation of the health inequities in the population and its determinants.
Hospital Networks and the First Level of Attention	Integral System of Patient Attention (SIAP)	Electronic clinical file aligned, integrates the modules: archive, appointments, consultation, pharmacy, clinical laboratory, medical imaging and ITS surveillance.
VIH/SIDA Program and Central Lab.	Clinical Laboratory Information System (LISCE)	Automates the managements and the processing of samples, informs in due course the laboratory analysis results.

Health Surveillance Direction	El Salvador's Epidemiological Surveillance System (VIGEPES)	Recompilation of epidemiological events bound to mandatory surveillance and notification; reports of 1234 SNS' notifying units; decision taking, answer and outbreaks control.
MINSAL in its set	Production's Statistical System (SEPS)	Generates information about the production of sanitary attention, from the activity tabs in the different MINSAL's attention levels.
Supply Unit and UACI	National Supply System (SINAB)	Effective and efficient management of the acquisition of goods and UACI services to stores, including medications, medical input and other elements.
Hospital and Planning Administration	Programming, Monitoring and Evaluation System (SPME)	It facilitates the situation analysis and the formulation of operating plans to improve the management of hospitals' service offer with which to face the population's growing demand.
RRHH Administration	Human Resources Planning Module and Social Services Module	Functionizes online the OMS' methodology of RRHH necessities evaluation in health, applies ideal criteria to determine personnel gaps according to hospitals categorization.
MINSAL in its group	Management Indicators Information System (SIIG)	Data capture from all SUIS modules and other external institutional sources as to generate indicators and operator panels to elaborate and decide strategic reports.

MINSAL in its group	Georeferenced Information System (GEO)	Query of establishments locations and geographical areas of sanitary intervention; mapping of health social determinants and other indicators contained in the SIIG.
RRHH, RIIS and Central Level Units Management	Virtual Educations Platform and Multiple Web Conferences	Complement to training schemes and continuous trainings; to facilitate the institutional planning and the follow-up of work plans by means of web conferences in real time at a national and international level.
Environmental Sanitation Management	Environmental Sanitation System (SISAM)	Allows the environmental 's health situation analysis, the systematization and reduction of administrative procedure time for the emission of sanitary permits to food producing establishments.
MINSAL in its group	Cost Management System	The generation of costs from sanitary services, procedures, medical appointments, hospital admittance, medical input, sanitary technologies, among others, in the decision making.
Disaster Unit	Emergency and Disaster Management System	Management of appropriate information in emergencies and disasters, shelter and actions took by health personnel; integration of intersectoral information for decision making.

VIH National Program	Monitoring Evaluation Vigilance Epidemiological of people with VIH Single System (SUMEVE)	Morbidity and mortality record, laboratorial and statistics about people with VIH. Source: Information and Communication Technology Management, may 2015.
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Source: Ministerio de Salud Pública, El Salvador (free translation: Ministry of Public Health, El Salvador)

Single System of Health Information's Main Modules

The document¹¹ also affirms that as for the implementation of the SIAP, em 2015, twenty-seven of thirty hospitals are provided with the module of identification of the patient, of which fourteen have additional appointments module, five are provided with drugstore module and two possess module of clinical laboratory. This system, in accordance with the availability of team of calculation, local network and connection to the institutional intranet, also is implemented in the First Level of Attention: at present there is used in 45 Community Units of Familiar Health and the clinic of personnel, of which four already have the module of appointments and six the attention in the Alertness clinic Lookout of the Infections of Sexual Transmission. Advances are also observed in the information related to the human resources area.

In document of the OMS¹⁸, where results of an inquiry are presented on e-health advancements in the world in 2016, El Salvador affirmed that 25,5 %of the population is usufructuary of the Internet. It affirms that it still doesn't have a strategy or national politics of e-health but it already has a national system of information in health, being that the health professionals are being already enabled e-health. It affirms also pathology has electronic handbook so much in the primary, secondary and tertiary attention, composed by examinations modules laboratory, pharmacy, strategic decisions and human resources, besides PACS. In what refers to legal aspects, only aspects relative to the protection of privacy of the patients are secured by it. In the area of telehealth, El Salvador does not quote advancements.

Current situation of the National Health System in the area of information and communications technologies

The Plan of Government 2014 – 2019 tries to establish frame to accelerate the deepening of the Reform of Health in order the integration of the SNS to advance and establish that the national health politics has as goal to "Guarantee the right to health of all the persons by means of an integrated, solid National System of Health, which strengthens the public thing and regulates really the private thing, with a collision of social determination of the health and the full

application of the strategy of APS, adding efforts towards the universal health coverage”.

It had the following principles: transparency, solidarity, social commitment, equity, universality, cost-free status, social participation and community organization,

In the strategic information in health's axe¹⁹, it is affirmed that TIC are necessary for the modernization, innovation and permanent update of the public administration, improve the quality and agility of the services to the population; and facilitate the opportune, effective and efficient capture of decisions in any level.

There are proposals of diverse action lines¹⁹, among which it is highlighted:

- To reach making of opportune decisions and the progress of the health of the population, developing and implementing the TIC adapted, accessible and sustainable, especially the georeferenced family card, the only electronic clinical records and the hardware of apprehension of information, analysis and alertness of the social inequities of the health;
- To generate, to protect and to guarantee the access to information opportune, correct and finished;
- To integrate the components of the Unique information System in Health(SUIS) to improve the quality and opportunity of the information by means of the automated information transference between the different modules and between the institutions that the SNS and the private sector shape;
- To facilitate to the entities comptrollers, including the organized civil society, the access to information of the SIUS necessary for the exercise of a precise and informed social controller's office and the scientific investigation.

The text does not mention specific activities in the telehealth area.

However, in 2017 and 2018 they continued the realizations of Teleconferences turned to the communitarian unities of health of the family, as visualized down in chat III.

Chart III – Subjects and dates from teleconferences carried out by the Ministry of Health from El Salvador – 2017-2018

2017	2018
How to develop a short and long-term life project - December 14th 2017	TYPHOID - FEBRUARY 15TH, 2018
advances in the compliance of the sentence's remedial measures by the salvadorian state - december 14th, 2017	preparation of the quick answer equipments on front of the measles regional epidemiological situation february 08th, 2018

i international nursing scientific journey: "advanced to informatics" - november 17th, 2017	measles january, 22nd, 2018
understanding palliative care: pain in cancer - october 31st, 2017	
national forum: chronic kidney disease: milestone of determination and intersectoral strategies for its integral approach (ii journey) - october 26th, 2017	
national forum: milestone of determination and intersectoral strategies for its integral approach - october 26th, 2017	
radiotherapy principles - october 25th, 2017	
integral approach of prostate cancer - october 24th, 2017	
update on conjunctivitis' situation - october 20th, 2017	
communal work experience with severe human rights violations during armed conflict - october 20th, 2017	
integral approach of lung cancer - october 24th 2017	
inter american system of human rights protection (sipdh) - october 17th, 2017	
integral approach of gastrointestinal cancer: stomach cancer and colorectal cancer - october 11th, 2017 02:00	
integral approach in haematological malignancy ii: acute myeloid leukemia and acute lymphoblastic leukemia - october 10th, 2017	
vih - infectious chronic degenerative illness october 05th, 2017 conjunctivitis october 02nd, 2017	

depression among older adults - august 23rd, 2017	
strategies to maintain an adequate work environment - august 17th, 2017	
rights and duties of public servants - july 13th, 2017	
gender and masculinity - july 11th, 2017	
ergonomics for health workers july 10th, 2017	
oral health in adults july 07th, 2017	
mental health unit intervention in psychosocial risks among minsal's working population july 06th, 2017	
preparations in front of a possible sanitary health alert due to showers - june 22nd, 2017	
eradication of malaria autochthonous transmission - june 16th, 2017	
equality and eradication of female discrimination law - june 15th, 2017	
terminology of malaria eradication - june 14th, 2017	
health alert y influenza ah3n2 in the early alert surveillance system - june 13th, 2017	
measurements of association - june 12, 2017	
peace culture - may 30th, 2017	
how to handle the grieving process - may 29th, 2017	
special integral law for a life free of violence for women - may 24th, 2017	
peaceful resolution of conflicts - may 23rd, 2017	
social gerontology, history, concepts and applications - may 02nd, 2017	
how to have a successful ageing - march 29th, 2017	
human rights and day-to-day life - march 28th, 2017	
recommendations for a healthy eating - february 08th, 2017	

prevention and attention to falls among older adults - january 25th, 2017	
communal management of dementia and alzheimer disease - january 18th, 2017	

Source: Ministerio de Salud Pública, El Salvador (free translation: Ministry of Public Health, El Salvador).

TICs direction compounds the directory structure of the health system¹⁴, having as goal to impulse the development and implementation of Technologies of Information and Communication (Tics) as support to the Reform of Health that bases its strategy of development in the full assumption of the analysis, design, development and implementation of all information systems of the MINSAL and its establishments, as well as the gradual elimination of the dependency of private software and its replacement for the use and production of hardware of software or open code. Thanks to it there is guaranteed the attainment of the technological sovereignty as well as an effective investment in technologies, efficient and fundamentally sustainable.

In a report of 2017²⁰, on the advancement of the society of the information in El Salvador, it is noticed that only 16,9 % of the homes has I access the Internet and 20,8 % of the homes they have computer, at the same time in what 29,0 % of the individuals affirms to use the internet.

The health reform advances over El Salvador. The process of implementation of the Model of Attention in Familiar and Community Health²¹ and is what has allowed the creation of the Familiar ECOS and Specializing ECOS, which has developed of chronological form from its beginning. In the year 2010, there were inaugurated 196 Familiar ECOS and 14 specializing ECOS implemented in eighty municipalities at national level with major indexes of poverty and undernourishment; in February, 2011 it increases to four hundred twenty-two Familiar ECOS and twenty-eight Specializing ECOS; in the year 2012, the Familiar ECOS increase four hundred fifty five and thirty five Specializing ECOS. In the year 2013 there are reached four hundred eighty one Familiar ECOS and thirty six Specializing ECOS, for the year 2014 there are four hundred eighty two Familiar ECOS and thirty eight Specializing ECOS. In the year 2015 they increase to 536 familiar ECOS and 39 ECOS specialized for a whole of 575 familiar ECOS. There has been consolidated the strategy of Community Teams of Familiar Health in 184 municipalities²¹.

Therefore, it was observed that a well articulated process in the TIC area in the process of the health reform in El Salvador, with significant advances. However, the telehealth area doesn't have accompanied the development process in the reform in El Salvador.

Conclusions

The proposal of the reform of the health system anchored in the primary attention is current in El Salvador, presenting significant results. The structuring of the area of technologies of information and communication has been developed to contribute to the advancement of the reform in the country based on free software. Important results got in this area are observed, in spite of the precariousness of the technological structure of the unities of health and in the country itself. In spite of any actions in the area of telehealth, the country still has not a national project in the area.

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CONFLICT OF INTERESTS:

There is no conflict of interest.