Progress and challenges in the implementation of telehealth in El Salvador

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Abstract

This review article seeks to identify the progress made in the implementation of telehealth in El Salvador and the challenges that remain in using this tool in an optimal manner, as it is very useful in bringing health services closer to the population and providing better quality care. In most countries in Latin America, they have managed to implement it according to their needs, legislation, policies, and financing, which is the fundamental part of obtaining the expected evolution in the different health systems. In the country, this process began in 2010 with the implementation of the new health reform, which aims to provide not only curative care, but also to implement the preventive model in the public system. This has led to greater attention to the use of technology to improve communication between facilities and between health workers for the benefit of users. In addition, some advances have been made in tele-education since 2014.
Keywords: Telehealth; Tele-education; Technologies

Resumen

Avances y retos de la implementación de telesalud en El Salvador.
El presente artículo de revisión trata de conocer los avances de la implementación de la telesalud en El Salvador y los retos que aún se tienen para poder utilizar esta herramienta, de una manera óptima ya que es muy útil para acercar los servicios de salud y dar atención de mejor calidad a la población. En la mayoría de países en América latina han logrado implementarla de acuerdo a sus necesidades, legislaciones, políticas y financiamiento, que es la parte fundamental para obtener la evolución esperada en los diferentes sistemas de salud. En el país este proceso inicio sus esfuerzos a partir del año 2010, a raíz de hacer efectiva la nueva reforma de salud; la cual tiene como objetivo dar una atención no solo curativa sino que se implementa el modelo preventivo en el sistema público, lo que da pie a darle mayor atención al uso de tecnología para poder realizar una mejor comunicación de los establecimientos y mejor aún entre los trabajadores de salud en pro y beneficio de los usuarios, creándose en primer instancia el Sistema Único de Información en Salud. Y además se ha desarrollado algunos avances en la tele-educación desde el año 2014.
Palabras-clave: Telesalud; Tele-educación; Tecnologías.

Resumo

Avanços e desafíos da implementação de telessaúde em El Salvador
O presente artigo de revisão busca conhecer os avanços da implementação de telessaúde em El Salvador e os desafíos que ainda se vê para poder utilizar esta ferramenta da melor maneira possível considerando sua importancia nos serviços de saúde para melhor qualidade da atenção à saúde da população. A maioria dos países latinoamericanos tem conseguido implementá-la de acord com suas necessidades legislações, políticas e finaciamento. Que é a parte fundamental para conseguir a evolução esperada nos diferentes sistemas de saúde. Em El Salvador, este proceso se iniciou a partir de 2010 a fim de fazer efetiva a nova reforma de saúde, a qual tem como objetivo oferecer atenão não só curativa mas também implantar um modelo preventivo no sistema público de saúde. Para anto buscou dar maior atenção ao uso de tecnologías para poder alcançar uma melhor comunicação entre os estabelecimentos e entre os trabalhadores de saúde em benefício dos usuários, criando assim num primeiro momento o Sistema único de Informação em Saúde. Além disso houve avanços também em teleeducação desde o ano de 2014.
Palavras-chave: Telessaúde, Teleeducação, Tecnologias

INTRODUCTION

El Salvador is a country in Central America located on the Pacific coast with a territorial extension of 21,041 km². It is the most densely populated country in the Americas, bordering Honduras to the north and east, the Pacific Ocean to the south and Guatemala to the west. Its territory is organized into 14 departments and 262 municipalities[1]. It has a total of 6,643,359 inhabitants by 2018 according to the country's General Directorate of Statistics and Census. Of the total population, 61.7% is in urban areas and the average population density in the country is 297 inhabitants per square kilometer.

In El Salvador, the health area has both the private and the public sector, with the latter being led by the Ministry of Health (MINSAL), which was transformed in terms of coverage of facilities, increasing them with the implementation of the current health reform that began in 2019, reducing inequality and inequity in the most vulnerable population, 2 regional hospitals, 3 national reference hospitals classified as third level of care, 422 basic UCSF (community family health units), 293 intermediate UCSF, 39 specialized UCSF, 22 maternal waiting homes, 10 international health offices, 4 specialized care centers, 69 health houses, 43 rural nutrition centers, 1 ophthalmology reference center, 1 national radiotherapy center and 1 employee clinic, making a total of 935 facilities[2].

As the governing body, MINSAL has launched initiatives to develop the area of telehealth, which according to WHO involves the delivery of health services using information technology, specifically when distance is an obstacle to health services.

Since 2010 there are efforts to implement in the health sector the use of technology to improve service delivery to users even with many limitations, but it has begun to develop, despite the challenges that remain to be overcome, and not having a permanent and sustainable financing system, which is why it is important to review the progress of implementation of this tool and the challenges for its continuity. The objectives of this paper are to learn and checking the progress and challenges of telehealth Implementation in El Salvador.

METHOD

This article review is of a descriptive type, which aims to understand the progress and challenges of the implementation of telehealth in El Salvador. To locate the bibliographic documents that support the review of information, several sources were used, including the academic Google search engine for document selection, and articles in both english and spanish, with primary and secondary sources such as PubMed, SciELO, which support the evidence of what is already available on the subject in telehealth in El Salvador, in addition to everything published about this tool on the official website of the MINSAL. This review was conducted in September 2019.

RESULTS

The use of information technologies is a tool that many countries in Latin America have used to improve and bring health services closer to the population, primarily in places with long distances, and also that due to lack of economic resources, it is not possible to have all the services at a local level.

The World Health Organization (WHO) has defined telehealth as: "The use of information and communication technologies for better control of health. For example, for the treatment of certain patients, the promotion of research, the creation of tools for the education of students, for monitoring various diseases, and, finally, for the supervision of public health"[3].

In this definition, the WHO incorporates into the concept of telehealth scopes related to health economics, such as cost-effectiveness, by expressing that: "it is the safe and cost-effective use of information and communication technologies (ICTs) to support health and its related fields"[4]. In addition, it broadens the scope of telehealth by not limiting it exclusively to the health sector, but also incorporating other sectors whose actions can impact the health conditions of the members of a population. From this perspective, telehealth can be considered a tool that can serve as an articulator for the achievement of comprehensive care, through inter- and trans-sectoral action in health. Eight dimensions have been identified in which ICTs contribute to health: access, effectiveness, efficiency, quality, safety, knowledge generation, impact on the economy and integration. Each of these dimensions is linked to different areas of application: prevention, diagnosis, treatment, monitoring, health education, management of services and e-commerce in the health sector.

The WHO states that the objective of telemedicine is: to provide health services, where distance is a critical factor, by any health professional, using new communication technologies for the valid exchange of information in the diagnosis, treatment and prevention of diseases or injuries, research and evaluation, and continuing education of health providers, all in the interest of improving the health of individuals and their communities[5].

As can be seen, WHO extends the scope of telemedicine to all health professions. This definition seeks to ensure that telemedicine becomes a strategy that contributes to the elimination of the problems of equity, access, quality and cost-effectiveness currently faced by health systems in both developed and developing countries[6].

From this point onwards, El Salvador has had signs of the introduction of telehealth from 2010 onwards. It should be noted that from this year onwards the health system underwent a decisive change in the way it works, as it

was a purely curative system, and moved on to implement the preventive form of care, with the implementation of 10 strategic axes:

1. Development of integrated health service networks
2. National medical emergency system
3. Medicines and vaccines
4. Intersectoral work
5. National Institute of Health
6. National Health Forum
7. Development of human resources in health
8. SUIS unique health information system
9. Violence and health
10. Environmental health

Of the total number of MINSAL establishments, only 339 are connected to a permanent network, either intranet or Internet, which is 36% provided by the Directorate of Information and Communication Technologies of the Ministry of Health. It should be emphasized that the majority of facilities that are not connected are first level of care, since all hospitals do have access to a permanent network.

It should be noted that at the time that the change from the curative to the preventive system was made within the MINSAL, there were fragmented information systems, as there were a total of 40 without any type of input or analysis, so efforts were made to unify them to conclude in what is now called the Single Health Information System, which consists of concentrating all the information on production, prevention, planning, management and actions of all health professionals within the public system.

Figure 1: modules of SUIS MINSAL El Salvador

SIFF: The Family Record Computerization System (in Spanish, el Sistema de Informatización de Ficha Familiar)

SIAP: Comprehensive System of Patient Care (in Spanish, Sistema Integral de Atención al Paciente)

SIMMOW: Morbi-Mortality System (in Spanish, Sistema de Morbi-Mortalidad)

SEPS: Statistical System of Service Production (in Spanish, Sistema Estadístico de Producción de Servicios)

SINAB: National Supply System (in Spanish, Sistema Nacional de Abastecimiento)

VIGEPES: epidemiological surveillance system in health (in Spanish, sistema de vigilancia epidemiológica en salud)
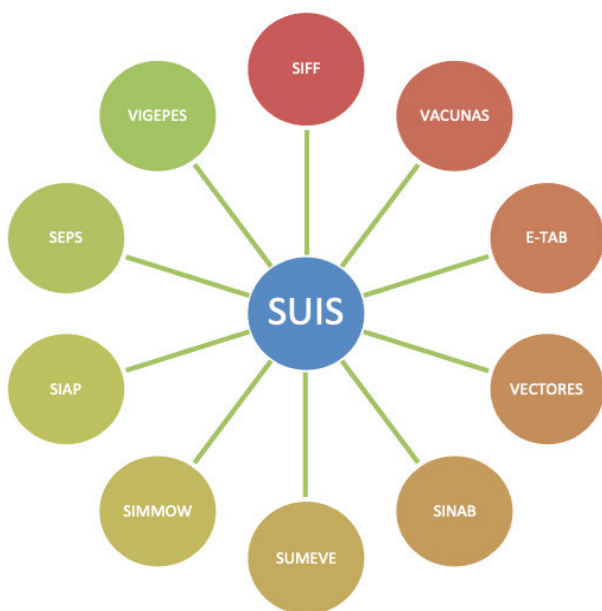
SUMEVE: Unique Monitoring and Evaluation System Epidemiological Surveillance of People with HIV (in Spanish, Sistema Único de Monitoreo Evaluación Vigilancia Epidemiológica de personas con VIH)

E-TAB: integrated management information system (in Spanish, sistema integrado de información gerencial)

VACCINES: National Vaccine Registration System (in Spanish, sistema nacional de registro de vacunas)

VECTORS: control system of activities against dengue (in Spanish, sistema de control de actividades contra el dengue)

An example of the benefits of this system is VIGEPES, which is an epidemiological surveillance system in which all establishments with a disease of epidemiological interest must enter the patient's information, so every day, all first level care facilities, has to review the system, as they are responsible for actions at the local level, and can be done from a mobile phone, but you need an internet connection, this took away a lot of protocol and paperwork that previously were occupied because when a case was reported was sent via FAX, or physical, and had many problems, which affected the actions and monitoring of these patients.

Another advance is the implementation of the electronic clinical file by means of the Integral System of Attention to the Patient (SIAP), a computerized system that allows the management of the information of the patients who consult in the different levels of attention of the MINSAL with the objective of improving the attention in the provided services. It is a fundamental component of the Unified Health Information System. It consists of 6 modules: identification, appointments, medical agenda, pharmacy, laboratory, and clinical follow-up. This is done in order to streamline the different processes of care and have greater control of

information. The implementation of this system is visionary, since the aim is for each patient to have a unique electronic file and, if they consult it at any establishment in the country and at any level, to have their history at hand to facilitate their care.

Below is the number of facilities with SIAP, according to the implementation of its modules.

Table 1: Level of implementation of SIAP in the MINSAL

SIAP module	N° of establishments	N° of Hospitals
Identification	130	28
Quotes	102	28
Medical Agenda	53	25
Pharmacy	73	26
Laboratory	62	10
Clinical monitoring	13	10

Source: Directorate of Information and Communication Technologies of the Ministry of Health El Salvador.

Another SUIS tool, IS the eTAB, or Electronic Dashboard, is a business intelligence tool created by the countries of Mesoamerica and is currently implemented in five countries. The project began in El Salvador with the Integrated System of Management Indicators (SIIG) at the beginning of 2011 as an initiative to evaluate the progress of the Health Reform, supported by the Pan American Health Organization (PAHO). In 2012, progress was seen and it was decided to support a re-engineering of the system to create the IMIS-eTAB and to reactivate, by means of a ministerial agreement, the Technical Committee on Indicators, which is responsible for defining the technical specifications of each indicator in the system. In August 2013, the Chiapas-Mexico development team was incorporated and made a major improvement to the user interface to make it more user-friendly. This version was replicated in Guatemala and Honduras, where new functionalities were added. Finally, it was implemented in Belize and Costa Rica. As a result of the project, a community was created, which has shared versions of the software between the countries. During 2018, a decision was made to revise the versions and merge them into a single branch to support the tool's sustainability[7].

Another advance that has been made in telehealth in El Salvador is the implementation of tele-education, which is a response to the need for training of the different health resources, to be at the forefront of knowledge and to provide better service to users, technically speaking, through teleconferences which are programmed from the Ministry of Health and in which any staff member has access to listen to it according to their interest from a mobile phone, computer, etc. in any place inside and outside the country and if there are doubts to ask the questions to the speakers, in real time, this was implemented from the year 2014. These are promoted from the official website of the MINSAL to where they are already scheduled, and the invitation is also sent via institutional mail to all personnel in the country[8]. Another advantage of this modality is that if the conference cannot be seen in real time, it is recorded and the presentation can be accessed at any time and downloaded without any difficulty.

In addition to this, it is worth mentioning that the MINSAL has a virtual classroom for searching scientific information in which the address is saber.gob.sv in which the resource can have access to academic pages. It also has a virtual platform for self-training EXCELLENCIS. The following is the schedule of the teleconferences.

Table 2 - MINSAL 2019 Telehealth Programming.

No.	THEME	SPEAKER	DATE / TIME	LINK
18	LAW OF RIGHTS AND DUTIES OF PATIENTS RELATED TO HUMANIZATION	SCI. HENRY EDMUNDO MACALL, HEAD OF THE COMPLAINT HANDLING OFFICE, HIGH COUNCIL OF PUBLIC HEALTH	SEPTEMBER 13, 2019	Duration: 58 minutes

17	PROMOTING THE RIGHTS OF PEOPLE WITH DISABILITIES	DR. MIGUEL ANGEL MARTINEZ SALMERON MEDICAL TECHNICAL COLLABORATOR, UNIT FOR THE RIGHT TO HEALTH, MINSAL	SEPTEMBER 09, 2019	Duration: 80 minutes
16	WHAT IS HUMANIZATION?	LIC. IVANIA MARROQUIN, HEAD OF SECTION STAFF TRAINING ISSS	SEPTEMBER 06, 2019	Duration: 43 minutes
15	FORUM "HUMANIZATION OF HEALTH SERVICES	SALVADORAN INSTITUTE OF SOCIAL SECURITY, NATIONAL DIRECTION OF QUALITY IN HEALTH - MINSAL, NATIONAL HOSPITAL "NUESTRA SEÑORA DE FATIMA", COJUTEPEQUE, SALVADORAN INSTITUTE OF TEACHING WELFARE, SOLIDARITY FUND FOR HEALTH, SUPERIOR COUNCIL OF PUBLIC HEALTH, SALVADORAN INSTITUTE OF INTEGRAL REHABILITATION	SEPTEMBER 04, 2019	Duration:: 257 minutes
14	SELF-CARE FROM THE BIO-PSYCHO-SOCIAL AND SPIRITUAL PERSPECTIVE	SCI. FELIX EVANGELISTA, PSYCHOLOGIST, MENTAL HEALTH UNIT	JULY 09, 2019	Duration: 55 minutes
13	NURSING INPUT TO THE TB PROGRAM	MSP. PATRICIA LEONOR RAMIREZ PINEDA, SUPERVISING NURSE, NATIONAL NURSING UNIT	JUNE 18, 2019	Duration: 30 minutes
12	PREGNANT PATIENT CPR	DR. DOUGLAS JIMENEZ	MAY 23, 2019	Duration: 35 minutes
11	CARD FOR THE IDENTIFICATION OF PSYCHOSOCIAL RISK IN ADOLESCENTS TREATED IN HOSPITALS	DR. MARIO SORIANO, RESPONSIBLE TEENAGER COMPONENT	MAY 16, 2019	Duration: 31 minutes
10	TECHNICAL GUIDELINES FOR THE DECONTAMINATION OF MEDICAL AND SURGICAL EQUIPMENT IN RISS FACILITIES	MSP. VILMA ELENA MARTINEZ MARTINEZ, DEPUTY HEAD OF THE NATIONAL NURSING UNIT OF THE MINSAL	MAY 09, 2019	Duration: 42 minutes
09	MANAGEMENT OF IRRATIONAL IDEAS	LIC. FRANCISCO MAYORGA, PSYCHOLOGIST, MENTAL HEALTH UNIT	MAY 07, 2019	Duration: 43 minutes
08	REMOTE SELF-TRAINING THROUGH THE ELECTRONIC TOOL "EXCELLENCIS"	DR. GIOVANNI GUEVARA, DIRECTOR OF HEALTH TECHNOLOGIES, DIRTECS	MARCH 28, 2019	Duration: 42 minutes
07	PRESENTATION OF THE BOOK: "HEALTH REFORM: BEYOND HEALTH SERVICES. HEALTH REFORM CONGRESS IN EL SALVADOR"	VICE MINISTRY OF HEALTH POLICY	MARCH 28, 2019	Duration: 92 minutes
06	BOOK LAUNCH: "THE PATH AND DEVELOPMENT OF NURSING IN EL SALVADOR TOWARDS CENTRAL AMERICA AND THE CARIBBEAN PROJECT ANGELS: A HUMAN STORY OF SALVADORAN AND JAPANESE NURSES	NATIONAL NURSING UNIT OF THE MINSAL AND JICA	MARCH 29, 2019	Duration: 95 minutes
05	EVALUATION OF HEALTH TECHNOLOGIES FOR THE INCORPORATION OF NEW AL LI MEDICINES	DR. GIOVANNI GUEVARA, DIRECTOR OF HEALTH TECHNOLOGIES (DIRTECS)	MARCH 21, 2019	Duration: 61 minutes

04	EARLY DETECTION AND CARE OF GLAUCOMA	DR. EDUARDO RIVERA HANDAL, HEAD OF OPHTHALMOLOGY AT THE HOSPITAL NACIONAL ZACAMIL	MARCH 12, 2019	Duration: 25 minutes
03	AGING AND NUTRITION	DRA. XOTCHITL PANAMEÑO	JANUARY 15, 2019	Duration: 42 minutes
02	ACTIVE AND HEALTHY AGING	DR. NIDIA T. CANES FLOWERS, SPECIALIST IN GERONTOLOGY AND GERIATRICS	JANUARY 11, 2019	Duration: 51 minutes
01	SEXUALITY	LIC. LYDIA HORTENSIA LEMUS	JANUARY 09, 2019	Duration: 42 minutes

Parallel to this, there are other tele-education conferences are presented.

DISCUSSION

Recent years have seen the emergence of new technological tools that mediate the health professional-patient relationship; such tools are based on the emergence of concepts such as Telehealth and Telemedicine. These tools are based on the emergence of concepts such as telehealth and telemedicine, which aim to eliminate distances and provide real-time solutions to the health needs of individuals, whether in the phases of health promotion, prevention, treatment, rehabilitation or palliation of disease. In the countries in which they have been advanced and have applied these tools, they have very good experience with their implementation since the benefit is both for health workers and the population that receives a better quality service, where it is difficult for a professional to be physically present, but virtually so, to give their technical opinion and solve problems that health teams have at the local level.

Telehealth and telemedicine are strategies that are increasingly being developed worldwide, allowing the efficient use of resources and the elimination of physical access barriers that prevent the timely care of patients who require it. Their development, however, faces various structural, ethical and legal challenges that must be overcome through an intersectoral approach, with the participation of health professionals, and professionals in communication and technology management, so that together they can analyze, design, implement and evaluate the processes that are part of the models of care based on telemedicine.

In El Salvador, as is well known, as soon as we are in the process of implementing telehealth, we know very well that we have a long way to go before we can compare ourselves with countries where great progress has been made, but that does not mean that we cannot achieve it. There is a lack of political and institutional will, and of all professionals, to implement it, but as it becomes known that this modality or technological tool brings services closer to the community, and that communication among health professionals is easier, and that we can offer more quality care, it will become a reality. However, the important challenge to achieve progress and to incorporate telehealth in a permanent and sustainable way is to know how to justify the clinical and economic benefits, with scientific evidence to obtain funding. In addition, health legislation must be in place to justify telehealth spending, and there must be a national telehealth plan in which all key actors participate actively to benefit the neediest population.

CONCLUSION

In El Salvador there is still a lack of a national policy and plan for telehealth and telemedicine, despite this there has been progress, although not as expected, but there have been signs since the implementation of the current health reform in 2009 when it was made known to the authorities and little by little to all health personnel, there is a lack of political will on the part of the authorities and that as professionals we put the use of these tools on the table, to improve the service we provide to the general population. The authorities should be made aware of the clinical benefits of having a well-implemented telehealth and telemedicine system, not only for the population but also for the health workers themselves, since it also includes technical training and the strengthening of knowledge according to each area of work.

With respect to the deficit of medical specialists, in the Community Family Health Units in the country it is necessary to implement telemedicine in order to bring the services closer to the population and thus be able to help the general practitioners who are those who attend the majority of the population.

Although tele-education has made some progress, health personnel should improve their attendance at teleconferences, which, because they are voluntary, are not used in the best way.

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