Development of telemedicine in El Salvador

Carranza Ramos   El Salvador, C.A

Daniella Ixchel   El Salvador, C.A

Abstract

In El Salvador, a process of improvement in human resources and unification of the health system is being developed that has been strengthened since 2010. Currently, it has the National Integrated Health System and the Law with the same name with which it is intended to have an Integrated and Comprehensive Network of Health Services, Emergency Medical System, Medications, and vaccines, with community strengthening, The creation of the National Institute of Health and SUIS (Unified Health Information System) are the spearhead of the project of Improvement in Telemedicine, however, need to advance even more, in the official site of the Ministry of Health where the population can link knowledge in this regard is also a tool. However, the advances in Telemedicine have not yet been what is expected due to the same difficulty systems unification and lack to generate a significant impact in the country.
Keywords: Telehealth; Telemedicine; Health Systems.

Resumen

Avances de la telemedicina em El Salvador.
En El Salvador se está desarrollando un proceso de mejora en recurso humano y unificación del sistema de salud que se ha venido fortaleciendo desde 2010. Actualmente cuenta con el Sistema Nacional Integrado de Salud y la Ley con el mismo nombre con él se pretende contar con una Red Integrada e Integral de los Servicios de Salud, Sistema de Emergencias Médicas, Medicamentos, y vacunas, con el fortalecimiento comunitario. La creación del Instituto Nacional de Salud y SUIS (Sistema Único de Información de Salud) son el comienzo del proyecto de mejora en Telemedicina. Sin embargo, hace falta aún más, en el sitio oficial del Ministerio de Salud en donde la población puede enlazar conocimientos al respecto también es una herramienta. Sin embargo, los avances en Telemedicina no han sido aun lo que se espera por la misma dificultad de unificación de sistemas y falta para generar un impacto significativo en el país.
Palabras clave: Telesalud; Telemedicina; Sistemas de Salud

Resumo

Desenvolvimento da telemedicina em El Salvador.
Em El Salvador está em desenvolvimento um processo de melhoria de recursos humanos e unificação do sistema de saúde que vem se fortalecendo desde 2010. Atualmente possui um Sistema Integrado de Saúde Nacional e a Lei com o mesmo nome com a qual se pretende ter uma rede integrada e abrangente de serviços de saúde, sistema médico de emergência, medicamentos e vacinas visando o fortalecimento da comunidade. A criação do Instituto Nacional de Saúde e do SUIS (Sistema Único de Informação em Saúde) são a ponta de lança do projeto de aprimoramento da Telemedicina. No entanto, é necessário avançar mais disponibilizando à população, via Ministério da Saúde, mais informação e mais conhecimento a respeito deste tema. Entretanto os avanços da telemedicina ainda não foram o que se esperava devido à mesma dificuldade de unificação dos sistemas e a não evidência de impactos significativos no país.
Palavras-chave: Telehealth; Telemedicina; Sistemas de Saúde

INTRODUCTION

Telemedicine offers healthcare services and remote medical information using information and communication technologies.

Since October 2010, El Salvador has participated in the IDB1 Telehealth project. At this stage, the diagnosis was made to implement various training and health advisory projects for family teams. Currently, a platform with free software is being developed at the national level that will allow better intercommunication between teams and specialists. There are free videoconferencing platforms such as the BigBlueButton and OpenMeetings applications, which work very well on the platform of servers and clients that have been acquired with equally free software (Debian and Ubuntu GNU/Linux distributions). There has indeed been a greater interest in Telemedicine, so we have the project started in the HNBB where software is developed to automate manual processes of patient data capture, facilitating the administration and control of the information that is generated in the Emergency Unit with the ability to integrate with the rest of the computer systems of the Benjamín Bloom National Children's Hospital, in the emergency area as a preliminary draft of a private university to make modifications in the emergency management and unify the services. The clearer example is the *Isla Tasajera y Colo-*

rada belonging to *San Luis la Herradura*, where it is the case of the Telemedicine project that has been developed, in the department of La Paz, by the *Asociación Conexão al Desarrollo de El Salvador*, and that benefits approximately 2 thousand people. It uses the Internet through a satellite link that reaches a small building where the local health promoter provides care and a small connection telecentre operates, the inhabitants of the island can communicate with the mainland and the rest of the world.[2]

Thus, we need different applications to continue developing Telemedicine in the country.

Since the beginning of Telehealth and Telemedicine in 2010, 9 years of platform development and the creation of links have carried out master videoconferences and online continuing education to develop not only health professionals but the general people. For example, such information-generating platforms as the official site of the MINSAL. The article analyzes the advances of Telemedicine in El Salvador and presents the general development of advances in the unification of systems in Telemedicine and the creation of tools and support links.

RESULTS AND DISCUSSION

In El Salvador, Telemedicine has been improving the platforms and make them more functional with objectives in the educational field and less participation. However, other countries in Europe and also in Latin America such as Brazil and Mexico have created a global advance and something that has been intended in our country for several years and that has hardly been created more shape and boom in recent years.

Telemedicine aims to provide health services maintaining the well-being of society or improving its general health. As a service, it includes not only healthcare provision for patients, but also facilitating administrative processes and providing health information.
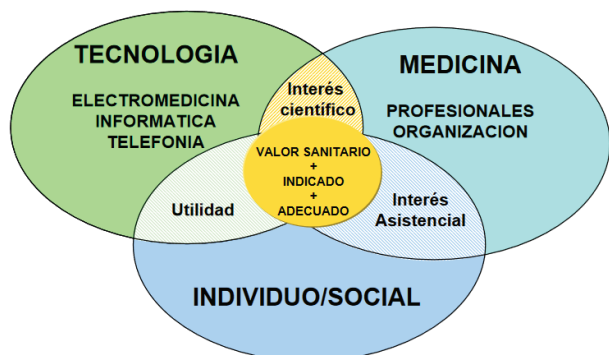

Ilustración 1: La Telemedicina como confluencia de distintos aspectos

Telemedicine projects should seek to satisfy the interest of citizens with high-value healthcare services using the means offered by technology, as has already been done in several municipalities of the country.

Telemedicine in healthcare processes

Remote assistance is based on the use of communication networks to transmit information and images with diagnostic quality. Although it is not yet well developed in the country's Telemedicine, a platform was created in 2018 called *MiSalud*. It is a new model of health services in primary care, with around 30 portfolios of doctors with medical subspecialties 24/7 continuous hours with a center of personalized attention but that must be self-financed by the person requesting the services and counting not only with assistance but also a personalized online file and safeguarding personal information through a preventive, educational, early diagnosis and therapeutic approach. It aims to reduce the consultation in the First Level of Care.[2]

In addition to including any medical specialty, other countries have access to information, they join forces and carry out periodic monitoring through digital platforms where they maintain monitoring and surveillance through video calls or direct links, such as in Mexico. They are applications that offer citizens multimedia content on health and disease care.

The benefits of telemedicine systems depend fundamentally on the telecommunication infrastructures used. As already seen, an important characteristic is a bandwidth whose requirements depend on the types of signals to be transmitted, their volume, and the required response times. The most demanding requirements are related to the transmission of high-quality images or moving images.

Aplicaciones de telemedicina	Requisitos tecnológicos
Tele-patología (asíncrona)	Alta resolución, baja velocidad
Tele-psiquiatría	Resolución media; vídeo interactivo a 384 Kbps (3 líneas de RDSI)
Tele-endoscopia	Alta resolución velocidad media-alta
Asistencia domiciliaria síncrona	RDSI, ADSL, Cable
Monitorización domiciliaria asíncrona	Telefonía básica, GSM, GPRS
Teleconsulta con buques	Enlace satélite. Banda ancha

Tabla 1. **Requisitos típicos de comunicaciones para diferentes aplicaciones de telemedicina**

Telemedicine Advances in Isla Tasajera

This is a telemedicine project that has been developed in *Isla Tasajera*, in the department of La Paz, by *Asociación Conexion al Desarrollo de El Salvador*, and that benefits approximately 2,000 people, in the *La Colorada y Tasajera* villages. The project was presented in 2012 to the FRIDA program.

It uses the Internet through a satellite link that reaches a small building where the local health promoter provides care and a small connection telecentre operates.

Antena satelital en Isla Tasajera, La Paz, El Salvador. Foto del autor.

Initiative and technological support were created thinking of providing basic services for consultation, diagnosis, and treatment of some diseases, with the financial support of the Latin American project program FRIDA (*Fondo Regional para la Innovación Digital en América Latina y el Caribe* - Regional Fund for Digital Innovation in Latin America and the Caribbean), and other organizations such as SVNet, an antenna has been installed that allows satellite communication through the Internet from the health promotion center to the rest of the world.

El centro Conexión en Isla Tasajera. Foto del autor.

The Connection has used equipment in good condition and installed 512MB internet broadband on the Island. Part of the project consisted of training the island's human resources, in particular some young people who today can use this technology to complete their schoolwork, do research on their own, communicate in many ways, and, of course, support broadcasting by Simple video conference through which the remote consultations that the residents make to the doctors, generals or specialists, are developed, according to the possibilities and symptoms of the patients. It was a transcendental initiative in those remote islands having clear study objectives such as the preventive part in child check-ups, achieving an effective treatment through digital platforms, sensitizing the population for the proper use of the tool.

DISCUSSION

On one hand, there is a need to resolve limitations or to satisfy demands from society and the professionals involved. On the other hand, the current technological evolution and the new vision of institutions offer an exceptional opportunity for the application of new information and communication technologies to improve the care and health of citizens.

In El Salvador, access to health services has been considerably improved, in addition to considering remote or distant places to have trained professionals and non-professionals in the use of technology, generating a significant impact, some barriers limit the need to circumvent the limitations of the people's access to health services. Some of the limitations are the geographical and orographic barriers, and the health professionals to be permanently informed of scientific, therapeutic, diagnostic advances, etc. that are produced in each specialty. This is because medicine is an area of activity in which it is critical to expand and keep knowledge up to date.

The availability of information and communication infrastructures is an important factor in the advancement of Telemedicine. Necessary technological elements are needed: Communications networks, Equipment, Information systems, Information exchange protocols.

CONCLUSION

The objective of achieving advances in Telemedicine is not far off in the country, however, it must continue to reap the benefits to have the expected impact.

REFERENCES

1. Alaneir de F, Fernandez A editores, Desarrollo de Telesalud en América Latina aspectos conceptuales y estado actual ; comisión económica para América Latina y El Caribe (CEPAL) Santiago de Chile; octubre de 2013 [citado el 13 de septiembre] Disponible en : https://repositorio.cepal.org/bitstream/handle/11362/35496/S2013129_es.pdf?sequence=1&isAllowed=y

2. Ibarra L , Telemedicina en Isla Tasajera: solidaridad y tecnología para llevar salud, 27 de julio de 2014 [citado el 14 de septiembre] Disponible en :http://blogs.laprensagrafica.com/litoibarra/?p=3054

3. González X, Modelo de Servicios de salud MISALUD 27 de Mayo de 2019 [internet] [citado el 12 de septiembre]. Disponible en : https://www.laprensagrafica.com/salud/MiSalud-Un-nuevo-modelo-de-servicios-de-salud-en-atencion-primaria-20190526-0439.html

4. Ministerio de Salud, Pagina oficial del Ministerio de Salud de El Salvador [internet] [citado el 20 de setiembre], Disponible en :https://www.salud.gob.sv/

5. Catalan -Matamoros, Daniel & López Villegas, Antonio. (2016). La Telesalud y la Sociedad actual: retos y oportunidades Revista Española De Comunicación En Salud.7.10.20318/recs.2016.3458.

6. La Prensa Grafica, Boletín informativo:Salud Tecnológica en La Colorada, mayo 2015 [internet] [citado 2 octubre] disponible en:https://www.laprensagrafica.com/elsalvador/Salud-tecnologica-en-La-Colorada-20150509-0043.html