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DIGITAL HEALTH AND TECHNOLOGICAL INNOVATION: THE TRANSFORMATION OF THE SALVADORAN HEALTHCARE SYSTEM

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Abstract

This article analyzes the transformation of the right to health in El Salvador under the paradigm of the digital revolution and the current legal framework. It examines how the transition from a face-to-face care model toward digital health ecosystems—exemplified by the DoctorSV platform and the use of artificial intelligence—demands a reconfiguration of fundamental patient guarantees and rights. Furthermore, it highlights that the implementation of the unified digital clinical record and telemedicine not only optimizes epidemiological management through the use of big data, but also imposes new ethical and legal challenges.

Methodology

A qualitative analytical-descriptive method was used based on a documental review and standards. The study comprehended four parts:

- Analysis of current standards: the Law for the Protection of Personal Data (2024) was reviewed focused on the 4th article on sensitive data usage and its impact on cybersecurity.
- Review of specialized framework: the National Integrated Health System (2019) and the Health Code (1988) were evaluated to link their mandatory digital medical records coexisting with the faculties held by the Public Health Superior Council (CSSP for its acronym in Spanish).
- Technical Juridical Study: technical guidelines from virtual doctor appointments and the Technical Guidelines for the Integrated Health System (SIS for its acronym in Spanish), to validate the legal equivalence in virtual and in-person doctor appointments.
- Jurisprudential approach: The analysis of rulings by the Constitutional Chamber regarding the right to privacy and the use of certified electronic signatures as a requirement for evidentiary validity in digital environments was incorporated.

Keywords: digital health, right to health, data protection, artificial intelligence, telemedicine

Background

In El Salvador, medical care was traditionally perceived as a last resort due to transportation and access difficulties; the complexity of the system limited timely care primarily to emergency situations. However, the 2020 health crisis acted as a catalyst for technological innovation in the country (Development Bank of Latin America, 2021).

Currently, both the public and private sectors have implemented virtual care models, responding to a healthcare management approach that prioritizes patient needs. Digitalization has become an imperative demand: it is replacing face-to-face interactions in hospitals, health units, and clinics, while

simultaneously demanding government adaptation to meet the new needs of the population.

The digital revolution in the right to health seeks to establish a comprehensive healthcare system that prioritizes quality and a human-centered approach (Nelson, Tejerina, and Cafagna, 2020). From this perspective, digitalization not only optimizes operations but also transforms the management of clinical data into an efficient and secure model. While virtual communication facilitates access to services, digital healthcare demonstrates that it is possible to maintain the standards of quality and warmth inherent to traditional procedures.

Legal framework

The application of digitalization in healthcare services is not merely a technical procedure, but also an obligation of the State to address social needs and comply with international standards. In the Salvadoran context, the transition toward digital healthcare is not reduced to migrating physical records to digital ones; it requires incorporating virtual environments with cybersecurity standards that guarantee the integrity, availability, and confidentiality of information.

For this reason, it is essential to develop regulations regarding virtual medical care protocols, digital prescriptions, monitoring mechanisms, and the legal liability of healthcare personnel. Currently, the validity of virtual medical practice in El Salvador is supported by the following regulatory framework:

- Law on the Integrated National Health System: establishes the fundamental basis for modernizing the healthcare system by mandating the creation of a unique digital clinical record (Ley del Sistema Nacional Integrado de Salud, 2019).
- Health Code: Regulates the exercise of health-related professions, providing that every professional must have the authorization granted by the Superior Council of Public Health (CSSP) and the corresponding Supervisory Board (Código de Salud, 1988).
- Law for the Protection of Personal Data: Defines patients' health information as sensitive data in its article 4, and imposes strict standards for security, encryption, and access controls, linking digital practice with the right to privacy (Ley para la Protección de Datos Personales, 2024).

In this regard, constitutional jurisprudence has reaffirmed that privacy protects the reserved sphere *ad intra* of each individual (Supreme Court of Justice, 2008).

For the digital record to acquire full legal and evidentiary validity, the use of a certified electronic signature is indispensable, as it guarantees the authenticity of the medical act (Ley de Firma Electrónica, 2015).

Within the framework of healthcare modernization, the Ministry of Health (MINSAL) has institutionalized technical instruments regulating digital healthcare. Notable among these are the technical guidelines for teleconsultation and tele-interconsultation, which govern synchronous and asynchronous interactions between the physician and the user. Additionally, the Technical Standard for the

Discussion

Patients' rights and duties

The fast-paced digitalization of health services in El Salvador shall not be seen as a mere technological feat, but as a reconfiguration of the doctor-patient relationship. The usage of virtual platforms improves logistics; however, this progress also poses new challenges in medical ethics and legal safety. The transition from in-person to virtual appointments does not exempt the system from its fundamental responsibilities; moreover, it requires a more rigorous application of the principles of dignity and respect. To continue, it is analyzed how traditional privacy and autonomy warranties adapt to a digital environment to ensure that technology becomes a tool for inclusion and quality rather than an obstacle to fully exercise human rights within healthcare.

From a legal perspective, the right to health requires public and private healthcare providers to guarantee a service based on human rights and each individual need (Garay, 2003). In Latin America, it is imperative to regulate healthcare institutions since misinformation and lack of knowledge on these rights usually become barriers to effective compliance.

In El Salvador, the Law on the Duties and Rights of Patients and Healthcare Providers extends its protection to the digital environment through two fundamental pillars (Ley de Deberes y Derechos de los Pacientes y Prestadores de Servicios de Salud, 2016):

- Privacy: it is mandatory to healthcare professionals to use safe and encrypted platforms that stop the unauthorized access of third parties to video appointments.
- Informed Consent: the patient must understand the technical limitations inherent to virtual doctor appointments - particularly, the lack of a direct physical examination- and accept said aspect voluntarily.

The aforementioned agrees with the Universal Declaration on Bioethics and Human Rights of UNESCO (2005), in article 5 acknowledges the individual autonomy as a fundamental principle and a responsibility of the healthcare system. The Constitutional Chamber has corroborated that informed consent is the highest expression of will from a patient to participate in the process of medical attention, and it represents a non-negotiable condition to any intervention, be it virtual or in-person (Supreme Court of Justice, 2008).

Evolution and current perspectives

Recently, El Salvador has had a qualitative leap by releasing DoctorSV, a platform that acknowledges digital prescriptions and exams through the networks among authorized hospitals, clinical laboratories, and drug stores. This step removes the bureaucratic barriers that are tied to traditional models in paper allowing the healthcare system to work holistically with artificial intelligence and the legal framework thus converging to protect the citizens. To comply rigorously with the Law for the Protection of Personal Data, the system legally validates digital documents and makes the right to health easier to access, as well as the dispatch of medicines at a national level (Development Bank of Latin America and the Caribbean, 2025).

Beyond virtual doctor appointments, this technology allows advanced big data processing. The system is capable of generating high precision predictive and epidemiological models by cross referencing clinical data using artificial intelligence (Abarca Cidón, 2020). The tools not only contribute to the identification of evolution patterns in different pathologies, but also offer a detailed sociodemographic landscape on the impact of diseases on the population, thus optimizing decision making on public health matters.

Currently, the national digital healthcare model seeks to unify the complete patient cycle: from initial diagnosis to effective access to treatment, within a free and equitable environment. This transition toward hyperconnected medicine responds to a public demand for agile and efficient solutions. However, it is evident that the medicine of the future is inseparable from information security. Therefore, the increased use of these technological tools must be accompanied by parallel legislative development. The creation of regulations that precisely define professional liability and the protocols applicable to claims is fundamental. Only through an updated and rigorous legal framework will it be possible to guarantee clinical confidentiality and reduce the risks of malpractice in the digital era (Nittari et al., 2020).

The transition to digital health in El Salvador represents not only a technological advancement, but a necessary evolution in guaranteeing the fundamental rights of the patient. As previously analyzed, the traditional care model—characterized by in-person centralization and access barriers—is being overtaken by a system that prioritizes informational self-determination and continuity of care.

The provision of health services in digital environments in El Salvador, backed by the current legal framework, ensures that technological innovation advances in strict alignment with legal certainty and absolute respect for the fundamental rights of patients.

Conclusions

The legal validity of virtual medical practice is not a presumption; rather, it is based on the principle of functional equivalence of electronic media. In this context, the certified electronic signature represents the essential legal instrument that ensures the traceability, authenticity, and inalterability of clinical records in digital environments. This technological soundness allows the digital document to acquire full evidentiary value in professional liability proceedings, providing legal protection to both the healthcare professional and the patient.

Digitalization makes informed consent imperative, which must transcend its documentary dimension and establish itself as a sine qua non condition: it must clearly define the restrictions inherent to telemedicine—particularly the absence of a direct physical examination—before the patient voluntarily accepts this modality of care (Sala de lo Constitucional, 2008; UNESCO, 2005).

Finally, the convergence between big data and artificial intelligence within the National Integrated Health System will enable the transition from atomized clinical care to predictive epidemiological surveillance. The automated use of big data allows for the detection of sociodemographic patterns and pathological trends with algorithmic precision. Only through rigorous human oversight of these processes will it be possible to integrate artificial intelligence as a strategy for health equity and the optimization of the medical supply chain nationwide.

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