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The influence of fiber optic internet expansion on the quality of public health services and access to telemedicine.

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Itatiaia Fernandes Barbosa

http://lattes.cnpq.br/7777216556744419
Graduated in Physiotherapy from the University of Fortaleza in 2009. Physiotherapist at the Brazilian Hospital Services Company (EBESERH), seconded to the Municipality of Jaguaribe, in the state of Ceará, working in the Municipal Health Department since August 2021.
Position: Coordinator of Primary Health Care, leading teams and contributing to the improvement of health services offered to the local community.

Summary

The digital transformation of healthcare has expanded the use of technologies capable of improving the quality of care, optimizing service management, and increasing the population's access to healthcare. In this context, the expansion of fiber optic internet plays a fundamental role in providing the necessary infrastructure for...
This study aimed to analyze the influence of the expansion of fiber optic internet on the quality of public health services and access to telemedicine, as well as to discuss the functioning of telemedicine, electronic health records, the Internet of Medical Things (IoMT), Artificial Intelligence (AI), and other digital solutions.
This study examines the contributions of technological entrepreneurship to the digital transformation of healthcare. It is a qualitative, descriptive, and exploratory research study, developed through a narrative literature review, based on the analysis of eight studies published between 2018 and 2025. The results showed consensus among the authors regarding the importance of telecommunications infrastructure as an essential element for the consolidation of digital health. It was observed that the expansion of fiber optics favors digital inclusion, strengthens entrepreneurship, expands the offer of telemedicine services, enables remote patient monitoring, and enhances the use of Artificial Intelligence in clinical decision-making. Conversely, challenges persist related to information security, data protection, professional qualification, and the reduction of inequalities in access to digital technologies. It is concluded that the integration between fiber optic infrastructure, technological innovation, entrepreneurship, and public policies constitutes a determining factor for the construction of more efficient, accessible, safe, and patient-centered healthcare systems.

Keywords: Fiber optic internet; Telemedicine; Digital health; Entrepreneurship; Artificial intelligence; Internet of Things.

Abstract

Digital transformation in healthcare has expanded the use of technologies that improve the quality of care, optimize health service management, and increase population access to healthcare. In this context, the expansion of fiber optic internet plays a fundamental role by providing the infrastructure required for telemedicine, electronic health records, the Internet of Medical Things (IoMT), Artificial Intelligence (AI), and other digital health solutions. This study aimed to analyze the impact of fiber-optic internet expansion

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on the quality of public health services and access to telemedicine, and to discuss the contributions of technological entrepreneurship to the digital transformation of healthcare. This is a qualitative, descriptive, and exploratory study conducted through a narrative literature review of eight studies published between 2018 and 2025. The findings revealed a consensus among the authors regarding the strategic importance of telecommunications infrastructure as the foundation of digital health. The expansion of fiber-optic networks promotes digital inclusion, strengthens entrepreneurship, expands telemedicine services, enables remote patient monitoring, and enhances the use of Artificial Intelligence in clinical decision-making. However, challenges remain in information security, data protection, professional training, and reducing inequalities in access to digital technologies. It is concluded that the integration of fiber-optic infrastructure, technological innovation, entrepreneurship, and public policy is essential for building more efficient, accessible, secure, and patient-centered healthcare systems.

Keywords: Fiber optic internet; Telemedicine; Digital health; Entrepreneurship; Artificial Intelligence; Internet of Things.

1 INTRODUCTION

Digital transformation has brought about significant changes in the organization of healthcare systems worldwide, driving the incorporation of technologies capable of expanding access to services, improving the quality of care, and optimizing management of public resources. In this scenario, fiber optic internet stands out as a strategic infrastructure to enable the connectivity necessary for the operation of digital systems, electronic health records, telemedicine, artificial intelligence, Internet of Things Internet of Medical Devices (IoMT) and other technological solutions focused on healthcare.

The expansion of fiber optic networks represents one of the main factors for the The consolidation of digital health in countries with large territorial extensions, such as Brazil, where inequalities in access to specialized services persist. The availability of High-speed connections enable remote queries, Continuous patient monitoring, secure information sharing. clinics and the integration between different levels of healthcare, contributing to greater efficiency of services and reduction of geographical barriers.

There is a noticeable increase in technological entrepreneurship in the healthcare sector. driven by the development of startups, digital platforms, devices Intelligent, biomedical software and artificial intelligence-based applications. This The movement expands the possibilities for innovation in management and service delivery. health, promoting solutions aimed at improving the quality of care, and increasing

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from productivity to personalized care. However, the consolidation of these
Technology still depends on the existence of adequate digital infrastructure.
continuous investments, public policies for digital inclusion, and security of
Information and qualifications of the professionals involved.
Although technological advances have expanded the possibilities for modernization of
public health, challenges related to universal access to still persist.
high-speed internet, system interoperability, and data protection
personal, digital governance, and the preservation of the humanization of care.
Therefore, it becomes necessary to understand how the expansion of fiber optic internet is progressing.
It influences the quality of public health services and promotes greater access to them.
telemedicine and other digital technologies.
Given this context, this study aims to analyze, through a review...
Narrative literature: the influence of the expansion of fiber optic internet on quality.
of public health services and access to telemedicine, as well as discussing the
contributions of technological entrepreneurship, the Internet of Things, and Intelligence
Artificial intelligence and telecommunications infrastructure for the digital transformation of
healthcare assistance.

2. THEORETICAL FRAMEWORK

2.1 Entrepreneurship, Fiber Internet, and Changes in Public Health

The digital transformation of healthcare systems has taken on a strategic role in
Modernizing healthcare by promoting new forms of interaction among professionals.
health and users through digital technologies. This process fosters greater
Efficiency, increased access to services, and improved continuity of care.
However, its consolidation still faces challenges related to digital literacy, to
technological inclusion, personal data protection, and the preservation of the human dimension.
of assistance. In this context, digital health should be understood as a
A complementary tool to clinical practice, integrated into a centered care model.
in the person, in which technology strengthens, and does not replace, the relationship between professional and
patient (Santos; Teixeira, 2025).

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The advancement of digital health is linked to the availability of a robust infrastructure.
telecommunications. The expansion of fiber optic networks has become an element
Essential for supporting the growth in data traffic driven by computing.
in the cloud, through 5G networks, through Artificial Intelligence (AI) and systems of
telemedicine. In this scenario, the stability of critical networks depends not only on
fiber optic transmission capacity, but also intelligent traffic management,
of cybersecurity governance and the continuous mitigation of vulnerabilities. Thus, the
Network professionals are taking on a strategic role in building
Resilient, programmable, and auditable infrastructures capable of supporting services.
high-availability digital technologies (Camara, 2025).

In addition to supporting digital services, fiber optic internet constitutes a
Fundamental infrastructure for economic and social development. Its expansion
It encourages the emergence of new businesses and expands access to information.
It strengthens digital inclusion and boosts sectors such as education, teleworking, and...
The digital economy and healthcare. The availability of high-speed connections makes possible...
The democratization of access to digital technologies reduces regional inequalities and creates
conditions for sustainable growth. To maximize these benefits, it becomes
Joint action by the government and the private sector is indispensable in expanding
coverage and accessibility of fiber optic internet services (Ferreira, 2025).

In this context, digital entrepreneurship emerges as an important driver of...
Innovation in public and private healthcare. The development of business models.
Based on biomedical technologies, this includes digital platforms and wearable devices.
(wearables), software as a service (SaaS), artificial intelligence and solutions for
Remote patient monitoring. The diversity of the teams, the collaboration.
Multidisciplinary approaches and the scalability of solutions are key factors in this.
success of these ventures. Despite the regulatory, financial and
Technological advancements mean that digital entrepreneurship in healthcare presents high potential for...
to expand access to services, increase operational efficiency and promote greater
Personalized care (Brazil et al., 2025).

From this perspective, health economics is one of the most important sectors.
promising for new ventures. The growing demand for solutions
technological advancements, coupled with population aging and the need for optimization

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Health systems expand business opportunities. Therefore, entrepreneurship...
The healthcare sector presents high economic potential, approaching segments...
dynamic fields, such as data science, artificial intelligence, and technological development,
consolidating itself as a constantly expanding market (Aveni; Morais, 2021).
Another relevant component of this transformation is the Internet of Things (IoT), which
expands the possibilities for monitoring, automation, and continuous tracking of
Clinical conditions of patients. The use of smart sensors, devices
Connected and integrated systems allow for greater accuracy in data collection.
real-time, contributing to faster diagnoses and the prevention of complications and
for the improvement of the quality of care. Although there are challenges related to adoption.
Technological, interoperability and information security, the benefits of IoT for
health issues make its implementation increasingly relevant (Massola; Pinto, 2018).
The evolution of IoT gave rise to the Internet of Medical Things (IoT).
– IoMT), whose integration with telehealth enhances remote care. This
Technology benefits patients with mobility difficulties or residents of affected regions.
remote from large urban centers. Through connected devices, professionals
healthcare professionals are able to conduct consultations, ongoing monitoring, and follow-up.
home-based solutions, providing greater convenience, reduced costs, and improved quality.
of the assistance provided (Zorkot et al., 2021).
Artificial intelligence is increasingly being applied to patient safety.
AI-based tools are capable of integrating information from
electronic medical records, vital signs, laboratory tests, and other clinical systems.
to monitor data in real time. These algorithms identify risk patterns,
They provide early warnings and help prevent adverse events, such as infections.
Falls and medication administration errors. However, its implementation requires
clinical validation, training of multidisciplinary teams, and the adoption of
rigorous data protection mechanisms and ethical principles to ensure the
reliability and safety in the use of these technologies (Vieira, 2025).
Thus, it can be observed that entrepreneurship is associated with the expansion of the internet.
Fiber optics is one of the main pillars of digital transformation in public health.
The integration between telecommunications infrastructure, digital health, telemedicine,
The Internet of Things, Artificial Intelligence, and new business models strengthen the

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the ability of health systems to offer more accessible, efficient and patient-centered. However, for these benefits to be achieved, it becomes It is essential to make continuous investments in technological infrastructure and innovation. professional qualification, digital governance and technological inclusion, ensuring that the Technological advancement should occur ethically.

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3 METHODS

This study is characterized as qualitative and descriptive research.

This is an exploratory study, developed through a narrative literature review.

This approach was chosen because it allows for the integration of different theoretical perspectives.

Regarding the relationship between entrepreneurship, fiber optic internet, and digital transformation.

in public health, allowing for a comparative analysis of the authors' contributions.

The bibliographic search was conducted using national scientific articles published between 2018

and 2025, selected for addressing themes related to infrastructure of

telecommunications, digital entrepreneurship, digital health, Internet of Things (IoT)

Internet of Medical Things (IoMT), artificial intelligence, and innovation in healthcare. In conclusion

From the selection, eight studies considered relevant to the objectives of the were included.

search.

The data analysis consisted of reading the articles in their entirety, followed by the identification of the...

main thematic categories. A comparative analysis was carried out between the studies,

with the aim of identifying convergences, divergences and complementarities regarding

the role of fiber optic internet as infrastructure for entrepreneurship and for

The digital transformation of healthcare services. The results were organized into

The analytical categories were synthesized in a comparative table prepared by the authors.

4 RESULTS

The analysis of the eight publications made it possible to identify that entrepreneurship based on

The expansion of fiber optic internet is one of the main driving factors.

of the digital transformation of healthcare. Studies converge in demonstrating that

High-capacity telecommunications infrastructure forms the basis for

Implementation of digital solutions, such as telehealth and the Internet of Medical Things.

(IoMT), Artificial Intelligence (AI) and digital platforms focused on healthcare.

The results showed that the expansion of fiber optics promotes positive impacts.

which extend beyond the telecommunications sector, contributing to digital inclusion, the

strengthening the economy, expanding access to public services and

development of new business models in the healthcare field. It was observed that the

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The availability of stable, high-speed connections facilitates the performance of remote consultations, the secure sharing of electronic medical records, the continuous patient monitoring and integration between different levels of care health.

In the field of entrepreneurship, studies showed consensus regarding... growth of startups and technology-based companies focused on development biomedical solutions, digital platforms, wearable devices, Software as a service (SaaS) and artificial intelligence-based systems. These These initiatives have the potential to increase the efficiency of services and reduce costs. operational and personalized patient care, although they still face challenges. related to financing, regulation, technological infrastructure and professional qualification.

Studies also highlight the growing application of the Internet of Things (IoT) and... Internet of Medical Things (IoMT) as tools capable of transforming the Clinical monitoring. The use of smart sensors and connected devices. It allows for real-time remote monitoring of patients with chronic diseases. elderly people and individuals residing in remote areas, favoring early diagnoses and reducing the need for travel to health services.

Another recurring result relates to the use of Artificial Intelligence as A tool to support clinical decision-making. The articles demonstrate that algorithms AI systems are capable of integrating data from electronic medical records and exams. laboratory tests and vital signs to identify clinical patterns, generate early warnings and to reduce the occurrence of adverse events. However, its adoption requires mechanisms. Robust governance, information security, data protection, and clinical validation.

In addition to the technological benefits, the literature points to important challenges for the Consolidation of digital transformation in healthcare. Among them, the need for... stands out. expand digital inclusion, reduce inequalities in access to high-speed internet, Strengthen public connectivity policies, invest in critical infrastructure, to promote professional training and ensure that technological innovation remains focused on the patient's needs.

Overall, the results demonstrate that there is a convergence between entrepreneurship, Fiber optic internet and digital technologies constitute an important vector for the

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Modernization of public and private healthcare. However, the full utilization of these Innovation depends on the integration between investments in infrastructure and development. technological, digital governance and public policies that favor the democratization of access to health technologies.

Table 1 – Summary of the main results found in the literature.

Reference	Main Theme	Key results	Contribution to the study
Santos and Teixeira (2025)	Digital health	Technology strengthens care. It is fundamental when used in digital transformation to assistance. as complement clinical practice and healthcare the keeping the focus on the patient.	
Chamber (2025)	the importance of network	Optical networks, IP/MPLS, and cybersecurity infrastructure demonstrate infrastructure. To support critical digital technology services. in healthcare.	
Ferreira (2025)	inclusion, highlighting the importance	The expansion of fiber optics drives digital of fiber optics. the entrepreneurship, education, as the basis of innovation. Teleworking and healthcare services.	
	Digital, AI, SaaS and entrepreneurship digital	Growth of platforms Demonstrated in Brazil et al. new biomedical technologies geared towards digital business models (2025). health. applications.	
Avenue and Morais (2021)	Health economics	The health sector has high economic potential for entrepreneurship, innovation, and the new and to health economy. the ventures.	
of Things are expanding the application.	(IoT)	Sensors, devices, Massola, and the Internet Pinto (2018) the monitoring, prevention and The use of IoT in healthcare. quality of care.	
Zorkot et al. (2021)	IoMT and Telehealth	IoMT enables consultations and demonstrates the benefits of remote remote and monitoring and assistance. continuous household chores.	
Vieira (2025)	Intelligence Artificial	Intelligent systems identify clinical risks in real time and provide AI support tools to increase clinical decision-making safety. patient.	

Source: Prepared by the authors (2026), based on the references analyzed.

5 DISCUSSION

The comparative analysis of the eight studies revealed a high degree of convergence among the authors. Regarding the strategic role of digital infrastructure in modernizing services...

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health. Although each study addresses different aspects of technological transformation, They all acknowledge that high-capacity connectivity is the key element. structural for the implementation of new healthcare solutions.

Santos and Teixeira (2025) argue that digital health should strengthen the relationship between professionals and patients, preserving the humanization of care. This perspective This complements Camara's analysis (2025), which emphasizes the need for infrastructure. robust fiber optic, IP/MPLS networks and cybersecurity mechanisms to ensure the reliability and availability of digital services. While Santos and Teixeira They discuss the impacts on clinical practice, Camara focuses on infrastructure. technological necessary to enable this transformation.

Similarly, Ferreira (2025) expands on this discussion by demonstrating that the The expansion of fiber optic internet is going beyond the limits of telecommunications. promoting digital inclusion, economic development, education, teleworking and greater access to health services. In this respect, complementarity is observed between Ferreira (2025) and Camara (2025), since both consider connectivity a A fundamental requirement for the development of the digital economy and connected health.

The studies by Brasil et al. (2025) and Aveni and Morais (2021) converge in pointing out that Entrepreneurship as one of the main drivers of innovation in healthcare. However, They present distinct approaches. Brasil et al. (2025) focus on the creation of models. of businesses based on digital platforms, wearable devices, intelligence artificial intelligence and biomedical software, while Aveni and Morais (2021) analyze the economy. healthcare from a market perspective, highlighting its high potential for new [successes/growth]. investments and for the generation of business. In this way, both studies demonstrate Technological advancement drives healthcare innovation and development. economic.

Regarding emerging technologies, Massola and Pinto (2018) highlight that the Internet of The Internet of Things (IoT) expands clinical monitoring through smart devices. connected. This approach is further developed by Zorkot et al. (2021), who present the evolution towards the Internet of Medical Things (IoMT), emphasizing its integration with the Telehealth and remote patient monitoring. While Massola and Pinto discuss Zorkot et al. demonstrate the overall potential of IoT, showing its practical application in healthcare. remote access for patients with reduced mobility or residents of hard-to-reach areas.

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In the field of Artificial Intelligence, Vieira (2025) highlights that intelligent algorithms
They are able to monitor clinical data in real time, identify risk patterns and
to support clinical decision-making. This result complements the findings of Brasil et al.
al. (2025), who highlight AI as a central element of new business models.
Digital technologies in healthcare. Taken together, studies indicate that artificial intelligence acts as...
Business innovation technology and its role as a tool to support patient safety.
Despite the identified benefits, the authors also agree on the challenges.
for the consolidation of digital transformation. Santos and Teixeira (2025) emphasize issues
related to digital inclusion and preserving the humanization of care; Chamber
(2025) highlights the need for continuous investments in infrastructure and
cybersecurity; Massola and Pinto (2018) point out limitations related to
interoperability of systems; and Vieira (2025) reinforces the importance of protecting
data, clinical validation, and professional training for the ethical use of
artificial intelligence.
Overall, the comparison between the studies demonstrates that fiber optic internet
It constitutes the essential infrastructure to enable the digital transformation of healthcare.
While entrepreneurship acts as a catalyst for technological innovation.
Convergence between connectivity, entrepreneurship, the Internet of Things, and Intelligence.
Artificial intelligence and digital health promote the development of more efficient healthcare systems.
accessible and patient-centered. However, all authors emphasize that the
The benefits of these technologies depend on continuous investment in infrastructure.
Digital governance, professional development, and public policies focused on inclusion.
technological.

Table 2 – Comparison between the studies analyzed.

Author	Focus of the study	Main contributions	Relationship to other studies
Saints and Teixeira (2025)	Digital health	Technology should complement clinical practice and address the clinical impacts of technological infrastructure. The Complementary Chamber aims to preserve the humanization of clinical practice by addressing the clinical impacts of technological infrastructure. Careful.	
Chamber (2025)	Network infrastructure	Optical networks, IP/MPLS, and cybersecurity technology support the applications described by digital health services.	other authors.

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Author	Focus of the study	Main contributions	Relationship to other studies
Ferreira (2025)	entrepreneurship, and	Fiber expands digital inclusion, reinforces the importance of fiber internet, access to infrastructure for optical innovation. to health services.	and social development.
the analysis	of innovation Aveni and Morais Brasil et al. (2025). digital	Digital platforms, AI, SaaS and Complementary biomedical technologies in They are driving new business models business.	in healthcare.
Avenue and Morals (2021)	Health economics	The health sector presents high economic growth potential for new digital entrepreneurs. ventures.	
Massola and Chick (2018)	Internet of Things	IoT improves monitoring, prevention, and quality of life. It serves as a basis for the evolution presented by Zorkot et al. assistance.	
Zorkot et al. (2021)	IoMT e Telessaúde	Connected medical devices enable and expand practical applications for remote monitoring and... teleassistance.	The use of IoT in healthcare.
Vieira (2025)	Intelligence Artificial	AI monitors clinical data, Complementa Brasil et al., by identifying risks and increasing patient safety, demonstrating clinical application. AI.	

Source: Prepared by the authors (2026), based on the publications analyzed.

FINAL CONSIDERATIONS

The results of this review show that the expansion of fiber optic internet
It constitutes one of the main pillars of the digital transformation of healthcare systems.
The literature reviewed demonstrates a consensus in recognizing that the availability of
High-capacity telecommunications infrastructure is an indispensable condition for...
Implementation of telemedicine services, electronic health records, and the Internet of Things.
Medical professionals, artificial intelligence, and other technologies aimed at improving healthcare quality.
A comparative analysis of the studies revealed that fiber optics not only expands the
Connectivity in healthcare services, but it also drives entrepreneurship.
technological, favoring the emergence of new business models based on
Digital platforms, smart devices, and innovative monitoring solutions.
remote work, clinical decision support, and health management. Therefore, a relationship is observed.
of complementarity between technological infrastructure, business innovation and
Improving the quality of public health services.

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It was also observed that the incorporation of these technologies contributes to expanding the Access to specialized services for the population through telemedicine, reducing geographical barriers and strengthening the comprehensiveness of care. At the same time, the Literature shows that the use of Artificial Intelligence and the Internet of Things It enhances real-time clinical monitoring and the prevention of adverse events. To enable safer and more efficient decision-making by healthcare professionals. Despite the progress identified, the studies also point to significant challenges. related to the expansion of digital infrastructure in less developed regions, to cybersecurity, personal data protection, system interoperability, to the training of professionals and the need for public policies that promote digital inclusion and reducing inequalities in access to health technologies. It can be concluded, therefore, that the benefits of digital transformation in healthcare depend on... integration between investments in fiber optic infrastructure, entrepreneurship, Technological innovation and digital governance. Strengthening these elements could to contribute to building more accessible, efficient, safe and focused on the needs of the population, consolidating telemedicine and technologies Digital technologies as strategic tools for improving the quality of public health in Brazil.

One limitation of this study is the use of a narrative review. Literature, based on a limited number of publications. Research is recommended. Future studies should include systematic reviews and empirical studies capable of measuring the impact. The expansion of fiber optic internet has an impact on healthcare quality indicators. Access to services and the performance of public health systems.

REFERENCES

AVENI, A.; MORAIS, RSG de A. Entrepreneurship and innovation in health: new ventures in the health economy in Brazil. *Revista Processus de Políticas Públicas e Desenvolvimento Social,* v. 3, n. 6, p. 80–97, 2021. DOI: https://doi.org/10.5281/zenodo.5636832.

BRASIL, KRC et al. Digital entrepreneurship in healthcare: innovative business models in biomedical technologies. *Revista DCS,* v. 22, n. 83, e3593, 2025. DOI: https://doi.org/10.54899/dcs.v22i83.3593.

CAMARA, Augusto Cesar Queiroz. High-capacity network architecture and critical infrastructure: an analysis of optical transmission (DWDM), IP/MPLS routing and cybersecurity governance. *RCMOS - Revista Científica Multidisciplinar O Saber,* Brazil, v. 1, n. 2, 2025. DOI: 10.51473/rcmos.v1i2.2025.2173.

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Machine Translated by Google

Year VII, v.1 2026 | Submission: 06/16/2026 | Accepted: 06/19/2026 | Publication: 07/02/2026

FERREIRA, Jorge Siqueira de Rezende. The audacity of a fearless entrepreneur with the evolution of fiber optic internet and the positive changes in society. *RCMOS - Multidisciplinary Scientific Journal O Saber,* Brazil, v. 1, n. 1, 2025. DOI: 10.51473/rcmos.v1i1.2025.887.

MASSOLA, Silze Cristina; PINTO, Giuliano Scombatti. The use of the Internet of Things (IoT) in favor of health. *Revista Interface Tecnológica,* Taquaritinga, SP, v. 15, n. 2, p. 124–137, 2018. DOI: 10.31510/infa.v15i2.515.

SANTOS, Lito Miguel Parente dos; TEIXEIRA, Duarte José dos Santos. Digital health and proximity: does technology bring professionals closer to or distance them from patients? *RCMOS - Multidisciplinary Scientific Journal O Saber,* Brazil, v. 1, n. 2, 2025. DOI: 10.51473/rcmos.v1i2.2025.2628.

VIEIRA, MA AI for patient safety: tools that monitor data in real time to identify clinical problems. *Brazilian Scientific Journal of Health and Medicine,* v. 1, n. 1, 2025. DOI: https://doi.org/10.51473/rbmed.v1i1.2025.9.

ZORKOT, Mouhamed et al. Advances in the Internet of Medical Things in Healthcare and Neuroengineering. 2021.

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