

AI IN HEALTHCARE - THE MEDICAL STATUS IN TRANSFORMATION: CAN ARTIFICIAL INTELLIGENCE ALTER THE FOUNDATIONS OF PROFESSIONAL POWER?

**IA NA SAÚDE - O STATUS MÉDICO EM TRANSFORMAÇÃO: A INTELIGÊNCIA
ARTIFICIAL PODE ALTERAR AS BASES DO PODER PROFISSIONAL?**

Ciências Sociais Aplicadas, Ciências da Saúde • 24/08/2026

REGISTRO DOI: [10.70773/revistatopicos/787545687](https://doi.org/10.70773/revistatopicos/787545687)

David Lopes Maciel¹

Natiele Vieira de Oliveira²

Brício Rocha Borges de Almeida³

Fabício Moraes de Almeida⁴

ABSTRACT

This article analyzes the transformation of medical status in the context of advances in artificial intelligence, beginning with the historical construction of professional power in medicine and its contemporary mechanisms of maintenance. The study adopted a qualitative, exploratory, and critical-interpretive approach based on a selective literature review and documentary analysis, focusing on autonomy, jurisdiction, scarcity, specialization, remuneration, and social recognition. The results indicate that medical status was consolidated through the combination of specialized knowledge, professional control, institutional legitimacy, and economic differentiation. However, artificial intelligence systems increasingly demonstrate the ability to support or perform tasks related to diagnosis, interpretation, and clinical decision-making, partially reducing the cognitive exclusivity historically associated with the profession. The literature reviewed shows AI performance comparable to that of non-specialist physicians in specific tasks, although still inferior to specialists in aggregated assessments. In this context, it is projected that part of the medical activities predominantly based on information may, over the coming decades, shift toward models centered on supervision, validation, and intervention in exceptional cases. It is concluded that artificial intelligence is more likely to reshape the foundations of medical professional power than to eliminate physicians, shifting value from exclusive possession of knowledge toward responsibility, judgment, procedural skills, human interaction, and technological supervision.

Keywords: Medical status; Artificial intelligence; Professional power; Labor market; Clinical automation; AI in Healthcare.

RESUMO

Este artigo analisa a transformação do status médico diante do

avanço da inteligência artificial, partindo da construção histórica do poder profissional da medicina e de seus mecanismos contemporâneos de manutenção. A pesquisa adotou abordagem qualitativa, exploratória e interpretativo/crítica, baseada em revisão bibliográfica seletiva e análise documental, com ênfase em autonomia, jurisdição, escassez, especialização, remuneração e reconhecimento social. Os resultados indicam que o status médico foi consolidado pela combinação entre conhecimento especializado, controle profissional, legitimidade institucional e diferenciação econômica. Contudo, os sistemas de inteligência artificial [IA] já demonstram capacidade crescente para apoiar ou executar tarefas de diagnóstico, interpretação e decisão clínica, reduzindo parcialmente a exclusividade cognitiva historicamente associada à profissão. A literatura analisada mostra desempenho da IA comparável aos parâmetros de médicos não especialistas em determinadas tarefas, embora ainda inferior ao de especialistas em avaliações agregadas. Diante desse cenário, projeta-se que parte das atividades médicas baseadas predominantemente em informação poderá migrar, nas próximas décadas, para modelos de supervisão, validação e intervenção sobre exceções. Conclui-se que a inteligência artificial tende menos a eliminar o médico do que a modificar as bases de seu poder profissional, deslocando valor da posse exclusiva do conhecimento para responsabilidade, julgamento, capacidade procedimental, interação humana e supervisão tecnológica.

Palavras-chave: Status médico; Inteligência Artificial; Poder profissional; Mercado de trabalho; Automação clínica; IA na Saúde.

1. INTRODUCTION

Origin and consolidation of medical status:

The differentiated position of medicine was built through the transformation of specialized knowledge into professional authority. Freidson identifies medicine as one of the most consolidated examples of professional dominance, sustained by autonomy over diagnosis, treatment, training, and evaluation of its own work. Abbott expands this interpretation by demonstrating that the power of professions also depends on their capacity to claim and preserve jurisdictions over socially recognized problems (FREIDSON, 1970; ABBOTT, 1988).

In Brazil, this process was initially associated with the institutionalization of medical education and the formation of elites. The first medical-surgical courses were established in 1808, initially in Bahia and Rio de Janeiro, concentrating access to training for decades. Medicine thus came to combine specialized knowledge, a university degree, and a differentiated social position, bringing its members closer to the administrative and political structures of the State (SILVA, 2002; PETRARCA, 2017).

This proximity did not remain merely symbolic. Studies on Brazilian medical elites in the nineteenth century show professionals simultaneously occupying clinical, administrative, and political positions, converting academic training into social capital and institutional influence. In this sense, the medical degree also functioned as an instrument for reproducing and expanding privileged positions, strengthening the association between medicine, public authority, and social recognition (PETRARCA, 2017; FERREIRA, 1994).

The consolidation of medical power occurred when this prestige was accompanied by progressive control of the professional market.

Larson interprets professionalization as a process of constructing protected markets based on credentials and recognized competence, while Starr demonstrates how medicine converted scientific knowledge and professional organization into cultural and social authority. The profession therefore came to control not only knowledge, but also access, legitimacy, and conditions of practice (LARSON, 1977; STARR, 1982).

In the Brazilian context, Donnangelo adds a critical dimension by understanding medicine as a social practice embedded in institutional, economic, and political relations, rather than merely as a technical activity. In this sense, medical status results from the convergence of knowledge, credentialing, jurisdiction, autonomy, state recognition, and professional organizational capacity, elements that transformed scientific competence into enduring social power (DONNANGELO, 1975; FREIDSON, 1970; ABBOTT, 1988).

2. CONTEMPORARY MECHANISMS FOR MAINTAINING MEDICAL STATUS

Autonomy remains one of the main elements sustaining the physician's professional position. The International Code of Medical Ethics establishes that physicians should exercise independent clinical judgment, preserving their decisions from economic or institutional interference. This autonomy differentiates medicine from occupations in which technical decisions remain directly subordinated to the administrative structure (WORLD MEDICAL ASSOCIATION, 2022).

Specialization constitutes another mechanism of differentiation. In 2024, Brazil had 353,287 specialist physicians, corresponding to 59.1%

of all registered physicians, with strong territorial concentration and concentration in specific specialties. Medical residency, specialist titles, and subspecializations create successive qualification barriers and internally segment the market, preserving different levels of professional scarcity (SCHEFFER et al., 2025).

Territorial distribution also affects the maintenance of this professional value. The Southeast Region accounted for 55.4% of Brazilian specialists in 2024, while other regions had considerably smaller shares. Thus, even with the expansion in the absolute number of physicians, local markets and specialties remain in which professional supply is still limited, producing different conditions of access and negotiation of medical work (SCHEFFER et al., 2025).

However, changes in the organization of work are beginning to modify traditional autonomy. A study published in JAMA Internal Medicine identified physicians' concerns about the effects of private equity involvement on the work environment, administrative decisions, and professional well-being. Data published in Health Affairs also associate corporate acquisitions with changes in practice conditions and physician turnover (ZHU et al., 2024; SINGH et al., 2025).

The professional response to these changes is also evident in the recent growth of collective organization. Research published in JAMA identified an increase in physician unionization efforts in the United States between 2000 and 2024, in a context of expanding corporate employment and a perceived reduction in control over work. This movement shows that autonomy, conditions of practice, and bargaining capacity remain directly related to the position

occupied by physicians within healthcare organizations (ROOKE-LEY et al., 2025).

3. LABOR MARKET, REMUNERATION, AND PROFESSIONAL SCARCITY

Remuneration constitutes an objective dimension of medical status. Data from Demografia Médica no Brasil 2025 show that the average monthly income declared by physicians remained high in 2022, although it declined in real terms compared with 2012. This movement indicates that the profession's economic differential persists, but already shows signs of pressure in a market with a growing supply of professionals (SCHEFFER et al., 2025).

The differentiated economic position of physicians is not exclusive to Brazil. In OECD countries, physician remuneration remains substantially higher than the average wages of workers, with an even greater advantage among specialists. In 2023, salaried specialists earned, in several countries, between 1.5 and 2.5 times the average wage, while self-employed professionals could reach even higher differentials (OECD, 2025).

Specialization increases this economic differentiation. Comparative OECD data indicate that specialists earn, on average, about 40% more than general practitioners, with radiologists, anesthesiologists, and ophthalmologists among the highest-paid groups in several health systems. Income, therefore, also reflects relative scarcity, degree of specialization, and the procedural nature of medical activity (OECD, 2025).

In Brazil, however, the number of physicians is growing rapidly. The country had 597,428 physicians at the end of 2024, and previous

projections already indicated marked expansion of the workforce over the following decade. This growth occurs simultaneously with persistent regional inequalities, demonstrating that an increase in national supply does not mean uniform distribution of medical capacity (SCHEFFER et al., 2025; PAGOTTO et al., 2025).

Forms of contracting have also been changing the professional position in the labor market. Brazilian studies identify an expansion of contracting through legal entities (*peessoa jurídica*) and outsourcing, which physicians associate with reduced control over working conditions and contractual negotiation. Thus, high income, autonomy, and stability do not necessarily evolve together, making the structure of the employment relationship a relevant variable for understanding the persistence of medical status (LEVI et al., 2022).

The combination of income, specialization, and scarcity helps explain why medicine maintains an economic position above that of a large share of higher-education occupations. However, this advantage is not uniform across specialties, regions, or forms of contracting. International studies show that procedural specialties and those with greater private-sector autonomy tend to have higher earnings than those observed in primary care and predominantly clinical fields (OECD, 2025).

At the same time, the growth in the supply of physicians, diversification of employment arrangements, and concentration of professionals in major urban centers make the market progressively more heterogeneous. In this environment, the economic value of medical work comes to depend not only on the degree, but also on specialty, location, procedural capacity, institutional position, and access to the private market, gradually modifying the traditional

conditions of scarcity that characterized the profession (SCHEFFER et al., 2025).

4. METHODOLOGY

This study adopted a qualitative, exploratory, and critical-interpretive approach aimed at analyzing the historical construction of medical status and contemporary transformations capable of modifying its professional foundations. The research integrated social, economic, institutional, and technological dimensions, avoiding reducing the phenomenon to isolated indicators.

The investigation was developed through a selective literature review and documentary analysis. Recent studies, authors of recognized academic relevance, and publications in high-impact journals were prioritized, while classic authors were retained only when indispensable to the foundation of concepts such as autonomy, jurisdiction, professional dominance, and market closure.

The documentary analysis considered Brazilian legislation, professional standards, institutional reports, and consolidated sources on the medical labor market and workforce, including documents from the Federal Council of Medicine, Demografia Médica no Brasil, the Ministry of Health, WHO, and OECD. The materials were organized into categories related to knowledge, autonomy, jurisdiction, scarcity, specialization, remuneration, and social recognition.

Interpretation was conducted through triangulation among the theoretical framework, secondary data, and institutional documents. In the contemporary stage, categories associated with artificial intelligence, telemedicine, digital platforms, automation, and

robotics were incorporated, distinguishing established evidence, analytical interpretations, and prospective projections.

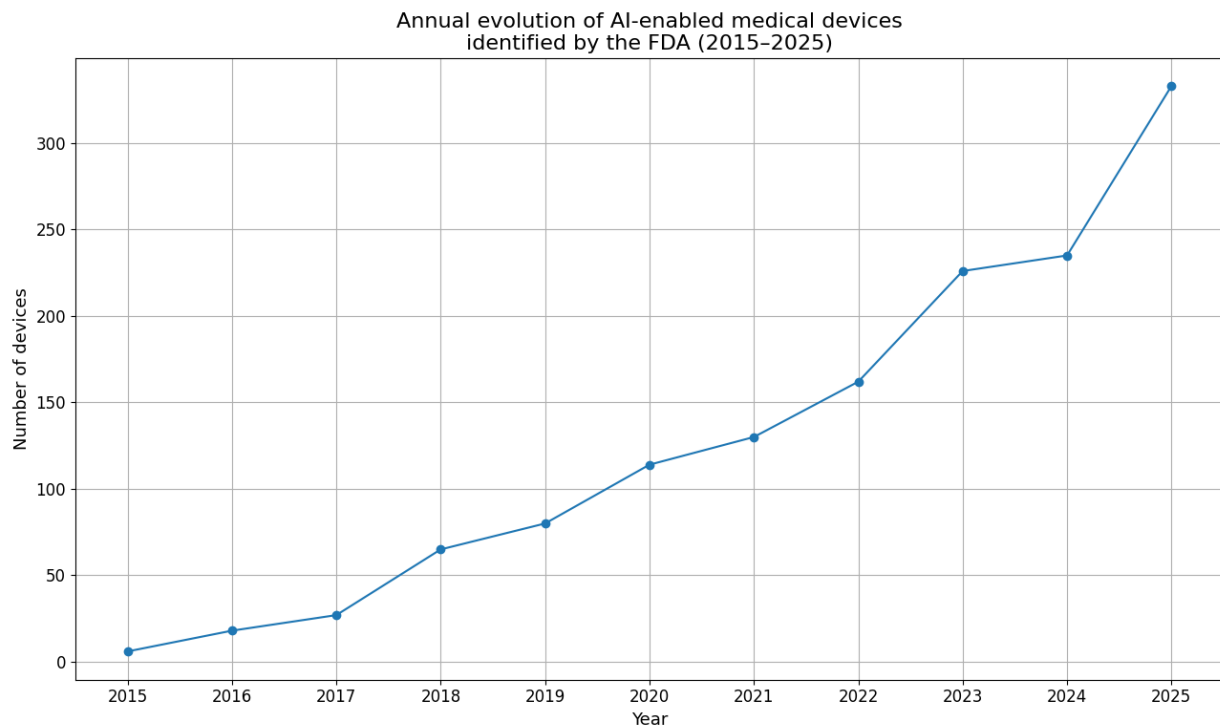
5. RESULTS AND DISCUSSION

The analysis of the historical and professional literature indicates that a relevant part of medical status was built on the exclusivity of specialized knowledge and on the capacity to convert it into clinical authority, autonomy, and economic differentiation. Artificial intelligence introduces a rupture in this structure by expanding access to the interpretation of clinical information, pattern recognition, and decision support, activities traditionally associated with physicians' cognitive competence.

This transformation does not imply the elimination of the profession, but it modifies one of its historical foundations: the scarcity of medical knowledge. When computational systems begin to perform or support tasks of diagnosis, interpretation, and clinical decision-making, professional value tends to shift from the mere possession of knowledge toward validation, judgment in exceptional cases, responsibility, human interaction, and supervision of algorithmic decisions.

The expansion of artificial intelligence in medicine can also be observed through the growing incorporation of AI-enabled devices into the clinical environment. FDA data show a marked increase in these technologies over the last decade, rising from only a few annual records to hundreds of devices identified in a single year, as shown in Figure 1 (FDA, 2026).

Figure 1. Growth in AI-enabled medical devices.

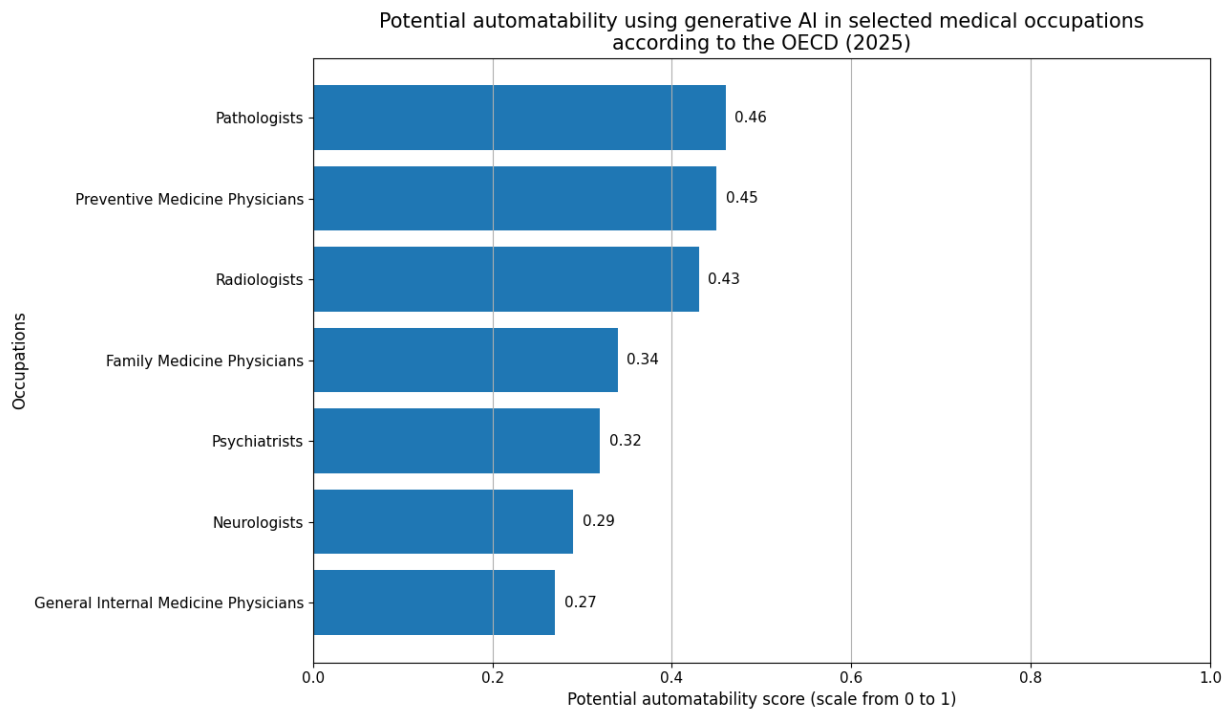


Source: prepared by the authors based on the FDA AI-Enabled Medical Devices List.

Beyond the regulatory growth of AI in healthcare, it is important to examine how this technology may affect professional tasks differently. In an OECD analysis based on 97 health occupations and more than 1,600 tasks, some medical specialties showed greater potential exposure to automation or reconfiguration by AI systems, especially in activities intensive in information, pattern recognition, and decision support (MANCA; ESLAVA, 2025).

The score used by the OECD ranges from 0 to 1, with higher values associated with greater potential automatability of tasks. Although the highest value among the selected medical specialties is 0.46, the original scale has an upper limit of 1.0. Therefore, the results should be interpreted as relative exposure to automation, rather than as the percentage of medical functions that will effectively be automated (MANCA; ESLAVA, 2025).

Figure 2. Potential automatability using generative AI in selected medical occupations, according to the OECD (2025).



Source: prepared by the authors based on Manca and Eslava (2025).

The data indicate that the potential for AI-driven automation is not distributed homogeneously across medical functions. Specialties with a strong component of data analysis, image interpretation, and pattern recognition, such as pathology, preventive medicine, and radiology, show greater potential exposure, while activities requiring complex clinical interaction, contextual judgment, and in-person intervention show lower automatability (MANCA; ESLAVA, 2025).

This difference suggests a transformation of the medical function. In more automatable cognitive activities, part of the analysis, classification, and initial formulation may be performed by AI systems, shifting physicians toward functions of validation, supervision, information integration, and decision-making in complex situations. Thus, the ability to critically interpret algorithmic output tends to gain importance in relation to the direct execution of routine tasks.

In this scenario, physicians remain responsible for care, but their position in the decision-making process may be reorganized.

Professionals tend to increasingly concentrate on clinical judgment, management of exceptions, communication with patients, responsibility for conduct, and technological supervision. AI may therefore modify not only medical productivity, but also the very division between what physicians perform directly and what they come to validate and supervise (MANCA; ESLAVA, 2025).

Recent literature shows that this transition is already beginning to modify the relationship between physicians and knowledge. A meta-analysis published in *npj Digital Medicine*, including 83 studies, found that the aggregate diagnostic performance of generative AI was similar to that of non-specialist physicians, although still inferior to specialists. This finding does not demonstrate professional replacement, but shows that part of the cognitive capacity previously concentrated in medical practice is beginning to be reproduced by computational systems (TAKITA et al., 2025).

This shift may also alter the organization of medical authority itself. Marwaha et al. (2025), in *npj Digital Medicine*, propose the emergence of professionals capable of working at the interface between clinical decision-making and algorithmic systems, while recent studies already discuss progressively autonomous medical agents. In this scenario, authority tends to depend less on exclusivity over information and more on the capacity to interpret, audit, correct, and assume responsibility for decisions produced with AI support (MARWAHA et al., 2025; FERBER et al., 2026).

6. CONCLUSION

The analysis indicates that medical status was historically sustained by the combination of specialized knowledge, autonomy,

professional jurisdiction, scarcity, and social recognition. Artificial intelligence is beginning to directly affect one of these foundations: cognitive exclusivity. By 2025, the FDA had already authorized more than one thousand AI-enabled medical devices, indicating that this technology had moved beyond the experimental field and advanced into regulated clinical applications.

The speed of this transformation is also evident in the recent evolution of diagnostic systems. In 2025, AMIE showed superior performance to primary care physicians in certain experimental scenarios; in 2026, its multimodal version began to simultaneously interpret dermatological images, electrocardiograms, and clinical documents during simulated teleconsultations, outperforming physicians across different evaluated criteria.

These results still do not support a conclusion of general AI superiority over physicians. A meta-analysis involving 83 studies found aggregate generative AI performance comparable to that of non-specialist physicians, but significantly inferior to specialists.

The available evidence therefore points to a progressive reduction in the cognitive gap between artificial systems and human professionals in delimited tasks, rather than to generalized clinical replacement (TAKITA et al., 2025).

Considering this trajectory, it is projected that, between 2035 and 2045, a substantial share of medical activities based predominantly on information may shift from a model of direct execution to one of supervision, validation, and intervention in exceptional cases.

Initial diagnosis, test analysis, medical record organization, longitudinal monitoring, and hypothesis formulation tend to show

greater exposure, while clinical responsibility, physical procedures, and complex decisions are expected to preserve greater human participation. This projection is compatible with the OECD expectation of partial automation of functions and reorganization of professional competencies in healthcare.

In this scenario, the most relevant transformation may occur before any significant reduction in the number of physicians. If AI increases individual productivity and allows one professional to validate a larger volume of clinical assessments, the effective supply of medical capacity increases without proportional growth in the workforce. The potential consequence is a reduction in the economic value associated exclusively with the possession of specialized knowledge, shifting professional differentiation toward less automatable competencies.

Thus, artificial intelligence will probably not eliminate physicians, but it may modify the structure that historically sustained their status. The lower the exclusivity over knowledge, diagnosis, and interpretation, the greater the importance of responsibility, judgment in exceptional situations, procedural skills, human relationships, and technological supervision.

Physicians may remain socially relevant, but their professional power will tend to depend less on cognitive monopoly and more on their capacity to control, validate, and take responsibility for systems that increasingly share in the production of clinical decisions.

REFERENCES

ABBOTT, Andrew. The system of professions: an essay on the division of expert labor. Chicago: University of Chicago Press, 1988.

ALMYRANTI, Margarita; SUTHERLAND, Eric; ASH, Nachman; EISZELE, Samuel. Artificial intelligence and the health workforce: perspectives from medical associations on AI in health. OECD Artificial Intelligence Papers, Paris, n. 28, 2024. DOI: 10.1787/9a31d8af-en.

DONNANGELO, Maria Cecília Ferro. Medicina e sociedade: o médico e seu mercado de trabalho. São Paulo: Pioneira, 1975.

FERBER, Dyke et al. Towards autonomous medical artificial intelligence agents. Nature, v. 655, p. 1282–1291, 2026. DOI: 10.1038/s41586-026-10675-5.

FERREIRA, Luiz Otávio. João Vicente Torres Homem: descrição da carreira médica no século XIX. Physis: Revista de Saúde Coletiva, Rio de Janeiro, v. 4, n. 1, p. 57–78, 1994. DOI: 10.1590/S0103-73311994000100004.

FREIDSON, Eliot. Profession of medicine: a study of the sociology of applied knowledge. New York: Dodd, Mead, 1970.

LARSON, Magali Sarfatti. The rise of professionalism: a sociological analysis. Berkeley: University of California Press, 1977.

LEVI, Maria Luiza et al. Médicos e terceirização: percepções de trabalhadores e gestores sobre as transformações recentes no mercado de trabalho. Trabalho, Educação e Saúde, Rio de Janeiro, v. 20, e00846199, 2022. DOI: 10.1590/1981-7746-ojs846.

MANCA, Fabio; ESLAVA, Diego. Digital and AI skills in health occupations: what do we know about new demand? OECD Artificial Intelligence Papers, Paris: OECD Publishing, n. 36, 2025. DOI: 10.1787/5fbd42ab-en.

MARWAHA, Jayson S. et al. The algorithmic consultant: a new era of clinical AI calls for a new workforce of physician-algorithm specialists. *npj Digital Medicine*, v. 8, art. 552, 2025. DOI: 10.1038/s41746-025-01960-0.

OECD. Health at a Glance 2025: OECD Indicators. Paris: OECD Publishing, 2025. DOI: 10.1787/8f9e3f98-en.

PAGOTTO, Daniel do Prado et al. Desigualdades regionais e baixa retenção de médicos no Brasil: evidências de 15 anos de análise por coorte. *Saúde em Debate*, Rio de Janeiro, v. 49, n. esp. 1, e9797, 2025.

PETRARCA, Fernanda Rios. De coronéis a bacharéis: reestruturação das elites e medicina em Sergipe (1840–1900). *Revista Brasileira de História*, São Paulo, v. 37, n. 74, p. 89–112, 2017.

ROOKE-LEY, Hayden et al. Unionization efforts by physicians between 2000 and 2024. *JAMA*, v. 333, n. 4, p. 347–348, 2025. DOI: 10.1001/jama.2024.23721.

SAAB, Khaled et al. Advancing conversational diagnostic AI with multimodal reasoning. *Nature Medicine*, v. 32, p. 1726–1736, 2026. DOI: 10.1038/s41591-026-04371-0.

SCHEFFER, Mário et al. *Demografia Médica no Brasil 2025*. Brasília, DF: Ministério da Saúde, 2025. ISBN 978-65-5993-754-7.

SILVA, Márcia Regina Barros da. O ensino médico em debate: São Paulo – 1890 a 1930. *História, Ciências, Saúde – Manguinhos*, Rio de Janeiro, v. 9, supl., p. 139–159, 2002.

SINGH, Yashaswini et al. Physician turnover increased in private equity-acquired physician practices. *Health Affairs*, v. 44, n. 3, p. 280–287, 2025. DOI: 10.1377/hlthaff.2024.00974.

STARR, Paul. *The social transformation of American medicine: the rise of a sovereign profession and the making of a vast industry*. New York: Basic Books, 1982.

TAKITA, Hirotaka et al. A systematic review and meta-analysis of diagnostic performance comparison between generative AI and physicians. *npj Digital Medicine*, v. 8, art. 175, 2025. DOI: 10.1038/s41746-025-01543-z.

TU, Tao et al. Towards conversational diagnostic artificial intelligence. *Nature*, v. 642, p. 442–450, 2025. DOI: 10.1038/s41586-025-08866-7.

U.S. FOOD AND DRUG ADMINISTRATION (FDA). *Artificial intelligence-enabled medical devices*. Silver Spring, MD: FDA, 2026.

U.S. FOOD AND DRUG ADMINISTRATION (FDA). *FDA issues comprehensive draft guidance for developers of artificial intelligence-enabled medical devices*. Silver Spring, MD: FDA, 6 jan. 2025.

WORLD MEDICAL ASSOCIATION. *WMA International Code of Medical Ethics*. Berlin: World Medical Association, 2022. Adopted by the 73rd WMA General Assembly, Berlin, October 2022.

ZHU, Jane M.; ZEVENEY, Andrew; READ, Susan; CROWLEY, Ryan. Physician perspectives on private equity investment in health care. *JAMA Internal Medicine*, v. 184, n. 5, p. 579–580, 2024. DOI: 10.1001/jamainternmed.2024.0062.

COPYRIGHT

Copyright: The authors are solely responsible for the material included in the article.

¹ Master of Science in Emergent Technologies in Education, MUST University, USA. Doctoral candidate in the Doctoral Program in Regional Development and Environment (PGDRA/UNIR). E-mail: [acesse o artigo original para visualizar o e-mail](#). ORCID: <https://orcid.org/0000-0002-8539-4023>

² Nurse. Bachelor's Degree in Nursing from Faculdade Interamericana de Porto Velho (UNIRON), Brazil. Postgraduate in Public Health Management (IFAM), Oncology (FAP), Urgency and Emergency (FAVENI), and Health Audit (FaHol/DNA).

³ Computer Engineering - UniSAPIENS (Porto Velho - RO, Brazil).

⁴ PhD in Physics (UFC), with postdoctoral training in Scientific Regional Development (DCR/CNPq). MBA in Software Engineering / Systems Analysis and Development / Data Science and AI. Researcher in the Doctoral and Master's Program in Regional Development and Environment (PGDRA/UFRO). E-mail: [acesse o artigo original para visualizar o e-mail](#). ORCID: <https://orcid.org/0000-0003-4173-4636>