Research Horizon

ISSN: 2808-0696 (p), 2807-9531 (e)

Research Horizon
Volume: 06
Issue: 03
Year: 2026
Page: 1259-1268

Citation:
Hardinata, & Sapsudin, A. (2026). Legal responsibility of doctors for misdiagnosis in the era of artificial intelligence. *Research Horizon*, *6*(3), 1259-1268.

Article History:
Received: May 14, 2026
Revised: June 10, 2026
Accepted: June 23, 2026
Online since: June 25, 2026

Legal Responsibility of Doctors for Misdiagnosis in the Era of Artificial Intelligence

Hardinata[1*], Asep Sapsudin[1]

[1] Department of Law, Faculty of Law, Universitas Islam Nusantara, Bandung, Indonesia

[*] *Corresponding author: Hardinata (hardinata56@gmail.com)*

Abstract

Artificial Intelligence (AI) integration in medical diagnostics has transformed healthcare services by improving diagnostic speed, accuracy, and efficiency. However, the use of AI also raises complex legal issues concerning liability when misdiagnosis occurs and causes harm to patients. This study aims to analyze the forms of legal responsibility arising from AI-assisted medical misdiagnosis and to formulate an ideal legal framework capable of ensuring legal certainty and patient protection in Indonesia. The research employs a normative juridical method with a descriptive-analytical approach through statutory and conceptual analyses. Data were collected through library research using primary, secondary, and tertiary legal materials related to health law, criminal law, medical malpractice, and AI governance. The findings reveal that legal responsibility in AI-assisted diagnosis encompasses civil, criminal, and administrative liability involving physicians, healthcare facilities, and AI developers. This study proposes a multi-layer liability model that proportionally distributes accountability according to each party's role and control. The study concludes that adaptive and comprehensive AI regulations are urgently required to ensure patient safety, technological accountability, legal certainty, and sustainable innovation in digital healthcare services.

Keywords

Artificial Intelligence, Health Law, Legal Liability, Misdiagnosis, Multi-layer Liability.

1. Introduction

The utilization of Artificial Intelligence (AI) in medical diagnosis has become a major innovation in contemporary healthcare, transforming medical services through advances in digital technology. AI systems can process and analyze large volumes of medical data, including electronic health records, radiological images, laboratory results, and genomic information, enabling more efficient and accurate disease identification than conventional approaches. In clinical practice, AI has been widely applied in radiology, pathology, cardiology, and oncology (Chazawi, 2022; Wibowo & Hidayat, 2023). Machine learning algorithms and neural networks assist in detecting abnormalities, predicting patient deterioration, and supporting personalized treatment planning. AI has evolved from a technological aid into an integral component of Clinical Decision Support Systems (CDSS) that substantially influences medical decision-making processes (Atmoko, 2022; Ardiyanti et al., 2024).

Despite these substantial benefits, the integration of AI into medical diagnosis has generated complex legal challenges, particularly regarding the determination of legal responsibility when diagnostic errors occur and cause harm to patients (Mahayani et al., 2023; Archibong et al., 2025). AI-assisted misdiagnosis may result in delayed treatment, inappropriate therapeutic interventions, worsening patient conditions, or even death. This phenomenon demonstrates that the rapid development of digital health technology is not always accompanied by adequate legal preparedness. Conventional medical liability frameworks are traditionally based on direct interactions between physicians and patients, where the physician acts as the primary decision-maker and bearer of professional responsibility. However, the involvement of autonomous or semi-autonomous AI systems has disrupted this conventional paradigm, creating uncertainty concerning the attribution of fault when medical decisions are influenced by algorithmic recommendations (Hameed & Al-Ameri, 2024; Indrawan et al., 2024).

In practice, physicians may rely on AI-generated analyses, while hospitals increasingly adopt AI systems to improve efficiency and healthcare quality. At the same time, software developers and technology providers design algorithms that may contain errors, biases, or system failures capable of influencing diagnostic outcomes. This condition creates a multidimensional legal relationship involving physicians, healthcare facilities, and AI developers within a single medical service process, thereby complicating the allocation of responsibility when diagnostic errors occur and raising important questions regarding the adequacy of existing legal frameworks to address AI-related medical liability (Gerke et al., 2020; Sari, 2024).

Within the Indonesian legal framework, the responsibility of medical personnel is principally regulated under Law Number 17 of 2023 concerning Health, which obligates healthcare professionals to provide services in accordance with professional standards, operational procedures, and medical ethics. Nevertheless, existing regulations have not specifically addressed the allocation of liability in AI-assisted medical services. The absence of detailed and anticipatory legal provisions regarding medical AI creates a legal vacuum that potentially weakens patient protection and generates uncertainty for healthcare providers. Previous studies by Rahmawati (2023) and Hermawan and Jamaludin (2025) concerning medical malpractice generally focus on physician negligence within conventional healthcare practices, while research discussing AI in healthcare tends to emphasize technological effectiveness and ethical considerations. Limited studies comprehensively examine the distribution of legal responsibility among physicians, healthcare institutions, and AI developers within the Indonesian legal context, particularly through the integration of Law Number 17 of 2023 concerning Health and Law Number 1 of 2023 concerning the Criminal Code (*Kitab Undang-Undang Hukum Pidana*/KUHP). This demonstrates a significant research gap regarding the formulation of a legal

liability model capable of accommodating the complexity of AI utilization in medical diagnosis (Kastury, 2024; Jasthi, 2025).

Based on these conditions, this research aims to analyze the forms of legal responsibility applicable to physicians in cases of misdiagnosis involving artificial intelligence technologies in medical services and to formulate an ideal legal regulatory model capable of ensuring legal certainty and patient protection in AI-based medical practice. This study employs Legal Protection Theory, Liability Theory, and the doctrines of Duty of Care and Professional Liability to examine the physician's professional responsibility despite the involvement of AI technology in clinical decision-making. The contribution and novelty of this research lie in the development of a collaborative or shared liability framework that proportionally distributes legal responsibility among physicians, healthcare facilities, and AI technology developers through a multi-layer liability model. Furthermore, this research contributes theoretically by integrating contemporary Indonesian health and criminal law frameworks into the discourse on AI governance in healthcare, while practically providing recommendations for adaptive regulations that ensure patient safety, legal certainty, and sustainable technological innovation within the national healthcare system.

2. Methods

This study employs a normative juridical research design with a descriptive-analytical approach to examine legal responsibility in the utilization of artificial intelligence within medical diagnostic services. Normative juridical research places law as a system of norms derived from statutory regulations, legal doctrines, and scholarly literature. The research focuses on analyzing the legal framework governing medical practice, healthcare services, and the implementation of digital technologies in Indonesia. The population of this research consists of legal materials related to health law, criminal law, medical malpractice, and artificial intelligence governance.

To comprehensively address the legal complexities arising from AI-assisted diagnosis, this study applies both statutory and conceptual approaches. The statutory approach examines relevant legislation, including Law Number 17 of 2023 concerning health, Law Number 1 of 2023 concerning the criminal code, and regulations concerning medical records and professional medical discipline. Meanwhile, the conceptual approach is utilized to explore legal doctrines and theories relevant to technological liability, such as product liability, duty of care, professional liability, and multi-layer liability in digital healthcare systems.

The data collection technique employed in this research is library research, which gathers secondary data from various authoritative legal sources. The collected legal materials are classified into primary, secondary, and tertiary legal materials. Primary legal materials consist of binding legal instruments, including statutory regulations, codes, and official legal documents related to healthcare and criminal responsibility. Secondary legal materials include books, scientific journals, academic articles, research findings, and expert opinions discussing health law, artificial intelligence, medical ethics, and malpractice liability. Furthermore, tertiary legal materials comprise legal dictionaries, encyclopedias, and other supporting references that assist in clarifying legal and medical terminology relevant to the study. Through this technique, the research systematically compiles comprehensive legal references to support the analysis of responsibility in AI-assisted medical diagnosis. Through this qualitative approach, the research aims to formulate a comprehensive and equitable legal responsibility model capable of ensuring patient protection, legal certainty, and accountability within AI-based medical services in Indonesia.

3. Results and Discussion

3.1. Legal Responsibility of Physicians in Cases of AI-Assisted Misdiagnosis

In the realm of healthcare practice, diagnosis represents the most critical foundational phase, serving as the baseline for all subsequent medical interventions and therapeutic decisions (Khajuria, 2023). The accuracy of a diagnosis directly dictates the efficacy of the treatment administered to the patient. A misdiagnosis carries severe, often irreversible consequences for the patient's physical well-being and imposes significant legal ramifications on the healthcare provider. From the perspective of health law, a diagnostic error is classified as a form of medical negligence if it is proven that the medical professional failed to execute their duties in accordance with the established professional standards, Standard Operating Procedures (SOPs), and the prevailing standard of medical care (McKinney et al., 2020).

Fundamentally, the interaction between a physician and a patient establishes a formal legal relationship that generates reciprocal rights and obligations (Fuady, 2005). This relationship, termed a 'therapeutic contract' or therapeutic relationship, is a professional partnership built on the patient's trust in the medical personnel to provide safe, competent, and high-quality healthcare. Every medical procedure executed by a doctor must strictly adhere to professional standards. Within the purview of civil law, the doctor-patient relationship triggers a professional obligation to exercise due care (Pabidang et al., 2023). Should an AI-assisted diagnostic error result in tangible harm to the patient, the act can be categorized as a tort or an unlawful act under Article 1365 of the Indonesian Civil Code. In the traditional paradigm, establishing civil liability is relatively straightforward. However, the introduction of AI complicates this matrix. The doctor remains the primary liable party if they exhibit negligence, for instance, by accepting an AI-generated diagnosis at face value without conducting independent clinical corroboration (Pratami & Dzukfiqar, 2024). Nevertheless, civil liability extends beyond the physician. Hospitals, as corporate entities providing healthcare services, can be held vicariously liable or directly liable for corporate negligence if they deploy unvalidated AI systems, fail to maintain cybersecurity standards, or neglect to provide adequate training for their medical staff. Furthermore, under the principles of product liability, AI developers may be sued if the system harbors inherent design defects, algorithmic bias, or predictable functional failures.

Criminal liability in medical practice requires the fulfillment of elements of negligence (*culpa*) or intent (*dolus*) that directly result in severe injury or death (Priyadi, 2024). In the context of AI utilization, the element of criminal negligence often manifests when a physician entirely abdicates their clinical judgment to the machine. Overreliance on AI, devoid of professional medical scrutiny, constitutes a severe breach of professional duty. If an AI system recommends a fatally incorrect dosage or misidentifies a malignant tumor as benign, and the doctor blindly follows this recommendation without standard cross-verification, the doctor may face criminal charges under Law Number 17 of 2023 concerning health and the criminal code. Interestingly, criminal liability could theoretically reach hospital administrators if gross negligence is proven in the procurement of dangerously flawed technology, though proving criminal intent or gross negligence against corporate entities or software developers involves highly complex digital forensics and interdisciplinary expert testimony.

Administrative liability serves as a vital regulatory mechanism focusing on adherence to professional discipline and ethical codes. The deployment of AI does not diminish a doctor's administrative obligations; rather, it demands a heightened standard of procedural diligence (Pusparini et al., 2024). Administrative violations occur when a doctor utilizes AI tools without possessing the requisite technological competence, fails to obtain specific informed consent from the patient regarding the

use of algorithmic decision support, or blatantly ignores institutional protocols for AI verification. The Indonesian Medical Disciplinary Honorary Council (*Majelis Kehormatan Disiplin Kedokteran Indonesia*/MKDKI) possesses the authority to adjudicate such breaches, imposing sanctions ranging from formal reprimands to the suspension or permanent revocation of medical licenses. These overlapping spheres of liability underscore the necessity for physicians to interact with AI not as an infallible oracle, but as a supplementary tool requiring constant, rigorous human oversight.

3.2. An Ideal Regulatory Model for AI-Based Medical Practice

To comprehensively understand the legal implications of utilizing AI in healthcare, it is imperative to analyze empirical evidence from international implementations. Various real-world applications demonstrate that while AI has an immense capacity to enhance diagnostic efficiency, it possesses inherent technological limitations that introduce novel risks of medical error (Rahmawati, 2023). AI is heavily dependent on the quality, diversity, and volume of the data upon which its algorithms are trained.

A prominent international case study that highlights these limitations involves the deployment of the IBM Watson for Oncology system in the United States. Designed to provide evidence-based treatment recommendations for cancer patients by ingesting vast amounts of clinical literature and patient data, the system encountered significant practical hurdles. Investigations revealed that Watson occasionally generated treatment recommendations that were misaligned with the patient's actual clinical condition, and in some instances, suggested therapies that oncology experts deemed unsafe. According to Strickland (2019) and Chikhaoui et al. (2022), the system was criticized for 'overpromising' its capabilities while 'underdelivering' in complex, real-world clinical environments. This gap between algorithmic potential and clinical reality underscores the danger of treating AI output as definitive medical truth.

Similarly, a landmark study by McKinney et al. (2020) and Alkhatib and Darabseh (2025) published in Nature evaluated an AI system designed for breast cancer screening. While the AI demonstrated the potential to match or even surpass the accuracy of human radiologists in controlled settings, the system still produced both false-positive and false-negative results, particularly when analyzing complex or atypical imaging data not adequately represented in its training dataset. In radiology, algorithm failures are frequently attributed to the AI's inability to contextualize anomalous data outside its training parameters. These cases collectively prove that AI systems are not yet fully reliable as autonomous diagnostic agents; they strictly require validation by highly trained medical professionals.

Errors involving AI in healthcare can generally be classified into four distinct categories, each carrying specific legal implications (Rimkutė, 2024). First, "data bias" occurs when the training data is unrepresentative of the general population, leading to skewed or discriminatory diagnostic outputs. Legally, liability for data bias primarily falls on the AI developers for flawed design and hospitals for failing to validate the system's applicability to their specific patient demographics. Second, "Algorithmic Error" refers to fundamental logical flaws or coding defects within the AI software itself. As a purely technical failure, the legal liability rests almost entirely on the developer or manufacturer under product liability laws. Third, "Doctor Misinterpretation" happens when the physician misunderstands the AI's output or statistical probabilities. Because the doctor is the end-user interpreting the data for clinical action, liability falls on the physician for lack of competence or care. Fourth, "Overreliance" (or automation bias) occurs when a physician blindly trusts the AI recommendation without conducting an independent clinical evaluation. This is a clear breach of professional duty, placing legal liability squarely on the physician.

The complexity of AI-assisted diagnosis necessitates a departure from traditional, single-axis models of medical liability. The ideal legal framework to regulate AI in healthcare must be anchored in the principles of patient safety, algorithmic transparency, technological accountability, and data protection (Soekanto & Mamudji, 2021; Sand et al., 2022). To accommodate the intricate legal relationships between doctors, healthcare facilities, and technology developers, this study proposes the implementation of a multi-layer liability model. This framework acknowledges that an AI-assisted diagnostic process is a collaborative ecosystem, and accountability must be distributed proportionally based on the roles and control exercised by each party (Soge, 2023).

In the first layer, the Physician bears primary clinical liability. The physician acts as the ultimate gatekeeper between the algorithmic recommendation and the patient. Under Law Number 17 of 2023, the doctor's duty of care remains non-transferable. The AI system functions merely as a sophisticated tool, a Clinical Decision Support System (CDSS) comparable to a stethoscope or an MRI machine, albeit highly advanced. The physician is legally obligated to cross-reference AI findings with the patient's holistic medical history, physical examinations, and their own clinical expertise. Liability attaches to the doctor if they fail to exercise critical judgment, misinterpret the data, or fail to inform the patient about the use of AI in formulating their diagnosis (Tutik, 2015; Topol, 2019).

In the second layer, the healthcare facility (hospital or clinic) assumes institutional liability. Hospitals are not merely passive venues; they are active providers of medical services. Under the multi-layer model, hospitals must be held accountable for the technological infrastructure they procure. Their liability is triggered if they deploy AI systems that lack proper regulatory certification, fail to provide adequate technical training to their medical staff, or ignore cybersecurity protocols, resulting in corrupted diagnostic data. Hospitals possess a corporate duty to ensure that the AI tools they mandate their staff to use are safe, clinically validated, and appropriate for their patient population.

In the third layer, the AI developer and manufacturer face product liability. Developers must ensure the integrity, safety, and reliability of their algorithms. If an AI system causes a misdiagnosis due to an inherent coding error, undisclosed algorithmic bias, or a failure to update the software against known defects, the developer can be held legally responsible. Because AI systems operate as 'black boxes,' placing an impossible burden on doctors or patients to prove how the algorithm failed, strict liability mechanisms may need to be applied to developers to ensure they rigorously test their systems prior to market release (World Health Organization, 2021).

The multi-layer liability model provides a comprehensive, equitable, and forward-looking regulatory paradigm. It prevents the unjust scapegoating of physicians for systemic software failures while simultaneously preventing doctors from using AI as a shield for their own professional negligence. By clearly delineating the responsibilities of each stakeholder, the Indonesian legal system can foster technological innovation in healthcare while stringently safeguarding patient rights and ensuring legal certainty.

4. Conclusion

The integration of Artificial Intelligence (AI) into medical diagnostics represents a paradigm shift in healthcare services, offering significant benefits in improving speed, accuracy, and overall quality of healthcare delivery. However, the utilization of AI simultaneously generates complex legal challenges, particularly concerning the determination of legal responsibility when diagnostic errors occur. The findings of this study demonstrate that although AI functions as an advanced analytical instrument, it cannot fully replace the clinical judgment of medical professionals.

Physicians remain the primary parties responsible for diagnostic decision-making based on professional obligations and the principle of duty of care as regulated under Indonesian health law. Nevertheless, attributing liability solely to physicians is considered legally inadequate and practically inequitable, given that AI-assisted diagnostic processes involve multidimensional relationships among physicians, healthcare facilities, and AI technology developers. Therefore, this study proposes the multi-layer liability model as an ideal legal framework capable of proportionally distributing legal responsibility to each party according to their respective roles and levels of control in the utilization of AI systems.

The implications of this research highlight the urgency of establishing adaptive regulations governing AI implementation in healthcare to ensure patient protection, legal certainty, and technological accountability. Healthcare institutions must guarantee system validation, medical personnel training, and data security, while AI developers are responsible for ensuring algorithm reliability and minimizing bias. However, this study is limited by its normative juridical approach, which focuses primarily on legal doctrines and statutory analysis without empirical examination of AI implementation in Indonesian healthcare services. Therefore, future research should adopt empirical and comparative approaches by examining hospital practices, judicial decisions, and international AI governance models to formulate more effective and responsive regulatory frameworks for digital medical technologies.

References

Alkhatib, A. J., & Darabseh, R. S. (2025). Ethical challenges in ai-driven healthcare innovations. *International Journal of New Medicine, 1*(1), 11-27.

Archibong, E. I., Raji, R. O., Ibe, D. I., Udoh, A. E., & Chisunka, M. (2025). Ethical and legal dimensions of AI diagnosis in medicine. *Ibom Medical Journal, 18*(3), 440–450. https://doi.org/10.61386/imj.v18i3.702.

Ardiyanti, N., Azmi, R. N. K., Ramadhan, N., & Jamaludin, A. (2024). Legal responsibility for the use of artificial intelligence in medical practice. *Jurnal Hukum De'rechtsstaat, 10*(1), 121–132. https://doi.org/10.30997/jhd.v10i1.11323.

Atmoko, D. (2022). Settlement of medical disputes through the forum of the Indonesian Medical Discipline Honory Assembly (MKDKI) based on the provisions of Article 66 of Law Number 29 of 2004 concerning medical practice. *Awang Long Law Review, 4*(2), 432–440. https://doi.org/10.56301/awl.v4i2.467.

Chazawi, A. (2022). *Malapraktik kedokteran.* Jakarta: Sinar Grafika.

Chikhaoui, E., Alajmi, A., & Larabi-Marie-Sainte, S. (2022). Artificial intelligence applications in healthcare sector: ethical and legal challenges. *Emerging Science Journal, 6*(4), 717-738. https://doi.org/10.28991/ESJ-2022-06-04-05.

Fuady, M. (2005). *Perbuatan melawan hukum (Pendekatan kontemporer).* Bandung: Citra Aditya Bakti.

Gerke, S., Minssen, T., & Cohen, G. (2020). Ethical and legal challenges of artificial intelligence-driven healthcare. In *Artificial intelligence in healthcare* (pp. 295-336). Cambridge: Academic Press. https://doi.org/10.1016/B978-0-12-818438-7.00012-5.

Hameed, E. K., & Al-Ameri, L. T. (2024). Artificial intelligence: The gateway to better medical diagnosis. *Al-Kindy College Medical Journal, 20*(1), 1–3. https://doi.org/10.47723/w1ymg293.

Hermawan, D. & Jamaludin, A. (2025). Legal certainty in the use of artificial intelligence for healthcare and medical diagnosis. *Research Horizon, 5*(6), 2845–2854. https://doi.org/10.54518/rh.5.6.2025.855.

Indrawan, K., Fakih, M., & Budiyono, B. (2024). Peran Majelis Kehormatan Disiplin Kedokteran Indonesia dalam kasus pelanggaran standar profesional dokter. *Jurnal Justicia Sains, 9*(2), 455–469. https://doi.org/10.24967/jcs.v9i2.3288.

Jasthi, V. N. (2025). Bias detection and mitigation in AI models trained on clinical datasets. *International Journal of Science and Advanced Technology, 16*(1), 1–12. https://doi.org/10.71097/IJSAT.v16.i1.7999.

Kastury, A. H. (2024). Kedudukan lembaga majelis kehormatan disiplin kedokteran Indonesia dalam perspektif hukum positif Indonesia, *Vifada Assumption Journal of Law*, *2*(2), 1–12. https://doi.org/10.70184/vh8xwy88.

Khajuria, A. (2023). Artificial intelligence in medical imaging technology: A clinical update. *Santosh Journal of Health Sciences*, *9*(1), 20–22. https://doi.org/10.4103/sujhs.sujhs_6_23.

Mahayani, B. M., Aji, R. B., & Ismono, J. (2023). Perlindungan hukum ketenagakerjaan bagi dokter dalam hubungan kerja dengan rumah sakit. *Law and Humanity*, *1*(2), 130–152. https://doi.org/10.37504/lh.v1i2.551.

McKinney, S. M., Sieniek, M., Godbole, V., Godwin, J., Antropova, N., Ashrafian, H., ... & Shetty, S. (2020). International evaluation of an AI system for breast cancer screening. *Nature*, *577*(1), 89–94. https://doi.org/10.1038/s41586-019-1799-6.

Pabidang, S., Prasetyo, T., Jaeni, A., & Purnomo, B. (2023). Tanggung jawab pidana tenaga medis atau tenaga kesehatan menurut Pasal 440 Undang-Undang Nomor 17 Tahun 2023 tentang kesehatan. *Jurnal Cahaya Mandalika*, *3*(1), 757–763. https://doi.org/10.36312/jcm.v3i1.3686.

Pratami, N. R., & Dzulfiqar, M. F. (2024). Analisis hukum terhadap peran artificial intelligence (AI) dalam diagnostik medis: Kewenangan dan tanggung jawab hukum. *INFOKOM (Informatika & Komputer)*, *12*(1), 84–93.

Priyadi, A. (2024). Tanggung jawab dokter/rumah sakit akibat malpraktik medis sebagai upaya perlindungan hukum bagi pasien. *Wijayakusuma Law Review*, *6*(1), 35–40. https://doi.org/10.51921/wlr.nh1swc85.

Pusparini, O., Sihotang, E., & Wiratny, N. K. (2024). Responsibility of doctors in medical services to patients according to laws and regulations. *Journal of Social Research*, *3*(8), 200–214. https://doi.org/10.55324/josr.v3i8.2181.

Rahmawati, F. (2023). Tanggung jawab hukum dokter dalam kesalahan diagnosis pada pelayanan kesehatan digital. *Jurnal Hukum Kesehatan Indonesia*, *5*(1), 21–35.

Rimkutė, D. (2024). AI and liability in medicine: The case of assistive-diagnostic AI. *Baltic Journal of Law & Politics*, *16*(2), 64–81. https://doi.org/10.2478/bjlp-2023-0013.

Sand, M., Durán, J. M., & Jongsma, K. R. (2022). Responsibility beyond design: Physicians' requirements for ethical medical AI. *Bioethics*, *36*(2), 162–169. https://doi.org/10.1111/bioe.12887.

Sari, N. P. (2024). Regulation of artificial intelligence in medical services: A comparative study. *Journal of Law and Technology*, *2*(2), 87–101.

Soekanto, S., & Mamudji, S. (2021). *Penelitian hukum normatif: Suatu tinjauan singkat*. Depok: RajaGrafindo Persada.

Soge, A. D. (2023). Analisis penanganan kesalahan profesi medis dan kesehatan dalam UU Nomor 17 Tahun 2023 tentang kesehatan menurut perspektif hukum kesehatan. *Jurnal Hukum Caraka Justitia*, *3*(2), 146–164. https://doi.org/10.30588/jhcj.v3i2.1690.

Strickland, E. (2019). IBM Watson, heal thyself: How IBM overpromised and underdelivered on AI health care. *IEEE Spectrum*, *56*(4), 24–31. https://doi.org/10.1109/MSPEC.2019.8678513.

Topol, E. (2019). *Deep medicine: How artificial intelligence can make healthcare human again*. London: Hachette UK.

Tutik, D. T. T. (2015). *Hukum perdata dalam sistem hukum nasional*. Jakarta: Kencana.

Wibowo, A., & Hidayat, M. (2023). Medical malpractice and artificial intelligence in healthcare systems. *International Journal of Medical Law*, *6*(1), 56–70.

World Health Organization. (2021). *Ethics and governance of artificial intelligence for health: WHO guidance*. Geneva: World Health Organization.

Acknowledgment
We gratefully acknowledge the contributions of individuals who supported the completion of this article.

Funding Information
This research did not receive any funding.

Conflict of Interest Statement
The authors declare that there is no conflict of interest.

Ethical Approval and Originality Statement
Ethical approval was obtained for this study. The manuscript represents original work and has not been previously published, nor is it under consideration by another journal.

Data Disclosure Statement
The data that support the findings of this study are available from the corresponding author upon reasonable request.