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Regulating Digital Health Services in Indonesia: Legal Challenges, Liability Issues, and the Protection of Patient Rights

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Abstrack: The rapid development of information technology has facilitated the emergence of digital health services such as telemedicine, e-health, and mobile health, which enhance efficiency, accessibility, and the overall quality of healthcare delivery. However, this digital transformation also generates legal challenges that necessitate clear regulatory frameworks, particularly concerning the protection of patients' personal data, the determination of medical liability in remote healthcare interactions, and the validity of electronic evidence in legal processes. This study aims to analyze the legal framework governing technology-based healthcare services in Indonesia and to identify the obstacles encountered in their implementation and enforcement. The research employs a normative juridical method with a statutory approach, drawing upon a literature review of relevant regulations, including the Health Law, the Electronic Information and Transactions Law, and implementing regulations issued by authorized institutions. The findings indicate that although Indonesia has established a legal framework for digital health services, the regulations remain sectoral and lack comprehensive standards, especially regarding medical liability, patient data protection, and oversight of digital platforms. Furthermore, implementation challenges persist due to weak inter-agency coordination, limited digital security infrastructure, and low legal and digital literacy among service providers and users. The study concludes that regulatory harmonization and the formulation of specific legislation are essential to ensure legal certainty, accountability, and the protection of patients' rights within Indonesia's digital healthcare ecosystem.

Keywords: Digital health services, Legal framework, Patient data protection, Medical liability

Abstrak: Perkembangan teknologi informasi mendorong hadirnya layanan kesehatan berbasis digital, seperti telemedicine, e-health, dan mobile health, yang menawarkan peningkatan efisiensi, aksesibilitas, dan kualitas pelayanan kesehatan. Namun, digitalisasi ini juga menimbulkan persoalan hukum yang menuntut penguatan regulasi, terutama terkait perlindungan data pribadi pasien, penetapan tanggung jawab medis dalam layanan jarak jauh, serta keabsahan bukti elektronik dalam proses pembuktian. Penelitian ini bertujuan menganalisis pengaturan hukum mengenai

pelayanan kesehatan berbasis teknologi di Indonesia dan mengidentifikasi kendala dalam implementasi dan penegakannya. Metode penelitian yang digunakan adalah yuridis normatif dengan pendekatan peraturan perundang-undangan melalui studi kepustakaan terhadap regulasi terkait, termasuk Undang-Undang Kesehatan, Undang-Undang Informasi dan Transaksi Elektronik, serta peraturan pelaksana dari instansi berwenang. Hasil penelitian menunjukkan bahwa kerangka hukum pelayanan kesehatan digital telah tersedia, namun masih bersifat sektoral dan belum memberikan standar pengaturan yang komprehensif, khususnya terkait pertanggungjawaban hukum tenaga medis, perlindungan data pribadi pasien, dan mekanisme pengawasan platform digital. Implementasi regulasi juga menghadapi kendala berupa lemahnya koordinasi antar lembaga, terbatasnya infrastruktur keamanan digital, serta rendahnya literasi hukum dan etika digital di kalangan penyelenggara layanan maupun masyarakat. Implikasi penelitian ini menegaskan perlunya harmonisasi regulasi lintas sektor dan perumusan regulasi khusus agar tercapai kepastian hukum, akuntabilitas, dan perlindungan hak pasien dalam penyelenggaraan pelayanan kesehatan digital di Indonesia.

Kata Kunci: Layanan kesehatan digital, Kerangka hukum, Perlindungan data pasien, Tanggung jawab medis

Introduction

The development of information and communication technology (ICT) over the past two decades has driven significant changes in various aspects of human life,[1] including the administration of healthcare services. The utilization of digital technology in the health sector has produced innovations such as telemedicine, teleconsultation, e-health, electronic medical records (EMR), and mobile health (m-health).[2] These innovations not only transform how healthcare services are delivered but also affect legal relationships, professional ethics, and the overall governance of healthcare services.[3] In Indonesia, digital transformation in the health sector has become an integral part of the national digital transformation agenda, as reflected in the National Medium-Term Development Plan (RPJMN), the Ministry of Health's vision for digitalizing health services, and the development of an integrated health ecosystem through the SatuSehat platform.[4]

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1 Hiranya K. Nath and Lirong Liu, "Information and Communications Technology (ICT) and Services Trade," *Information Economics and Policy* 41 (December 2017): 81–87, https://doi.org/10.1016/j.infoecopol.2017.06.003.

2 Lu Kong et al., "Usage and Impact of Information and Communication Technologies in Healthcare Delivery," *Service Science* 11, no. 3 (2019): 172–88, https://doi.org/10.1287/serv.2019.0244.

3 Burke W. Mamlin and William M. Tierney, "The Promise of Information and Communication Technology in Healthcare: Extracting Value From the Chaos," *The American Journal of the Medical Sciences*, Symposium: Improving U.S. Healthcare, vol. 351, no. 1 (2016): 59–68, https://doi.org/10.1016/j.amjms.2015.10.015.

4 Arul Chib et al., "Midwives and Mobiles: Using ICTs to Improve Healthcare in Aceh Besar, Indonesia1," *Asian Journal of Communication* 18, no. 4 (2008): 348–64, https://doi.org/10.1080/01292980802344182.

The main issue arising from these developments is how the state can ensure that the use of technology in healthcare services operates safely, accountably, and in accordance with the principles of patient rights protection.[5] On one hand, digital health services expand public access to medical care, especially in areas with limited facilities and healthcare personnel. On the other hand, the digitalization of healthcare introduces new challenges that did not exist in conventional practice, particularly concerning data protection, legal liability, and standards of medical services.[6]

In the Indonesian context, the protection of patients' personal data has become crucial due to the increasing number of health data breaches involving sensitive information from digital service users. Moreover, the use of digital platforms in healthcare raises questions regarding the scope and form of legal liability of medical professionals and platform providers in the event of medical errors or system failures. Issues related to the admissibility of electronic evidence, whether in proving malpractice or other health-related disputes, have also gained prominence with the growing use of electronic medical records and digital-based consultations.[7]

Additional problems arise from the lack of an integrated regulatory framework governing digital healthcare services. To date, the legal provisions remain dispersed across various regulations, such as Law No. 17 of 2023 on Health, Law No. 11 of 2008 on Electronic Information and Transactions (ITE Law) and its amendments, Law No. 27 of 2022 on Personal Data Protection, and technical regulations such as Minister of Health Regulation No. 24 of 2022 on Electronic Medical Records. However, despite the availability of these regulations, overlaps and regulatory gaps persist, particularly concerning telemedicine standards, digital platform oversight, verification of medical professionals' identities in digital spaces, and mechanisms for data security audits in healthcare facilities.[8]

Previous studies have highlighted the regulatory challenges of digital healthcare services. Several analyses conclude that telemedicine regulation in Indonesia remains sectoral, lacks uniform standards, and faces implementation barriers due to weak inter-agency coordination. These studies generally emphasize data privacy, medical ethics, and consumer protection. Additionally, comparative literature shows that countries with mature digital health legal systems typically adopt an umbrella regulation that comprehensively addresses service standards, data protection, platform governance,

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[5] Deby Febriyan Eprilianto et al., "Mewujudkan Integrasi Data Melalui Implementasi Inovasi Pelayanan Kesehatan Berbasis Teknologi Digital," *JPSI (Journal of Public Sector Innovations)* 4, no. 1 (2019): 30–37, https://doi.org/10.26740/jpsi.v4n1.p30-37.

[6] Lutfan Lazuardi et al., "Interoperability of Health Digitalization: Case Study on Use of Information Technology for Maternal and Child Health Services in Indonesia," *Business Information Systems*, July 2, 2021, 317–27, https://doi.org/10.52825/bis.v1i.53.

[7] Istiqomah Febrianty et al., "Analisa Tingkat Kematangan Literasi Tik Pada Tenaga Kesehatan Dalam Pelayanan Kesehatan Berbasis TIKDi Puskesmas Kota Palembang," *Jurnal Teknologi Informasi dan Ilmu Komputer* 11, no. 6 (2024): 1281–90, https://doi.org/10.25126/jtiik.2024116513.

[8] Gunawan Widjaja, "Pelayanan Kesehatan Bagi Pasien Menurut UU No.17 Tahun 2023 Tentang Kesehatan," *Innovative: Journal Of Social Science Research* 3, no. 6 (2023): 2490–98.

and legal liability. Indonesia, by contrast, still relies on sectoral regulations that risk inconsistent implementation.[9]

Despite the abundance of existing academic work, this study offers several novelties.[10] *First*, it integrates an analysis of cross-sector regulations related to digital healthcare services, encompassing the health sector, information technology, and personal data protection. *Second*, this study not only identifies normative issues in the existing regulatory framework but also examines the effectiveness of legal implementation through an analysis of institutional structures, supervisory authority, and the readiness of digital infrastructure. *Third*, it presents a new perspective on the importance of regulatory harmonization in digital health within the national legal framework, particularly in the context of ensuring legal certainty and protecting patient rights. Accordingly, this research contributes academically by filling the gap in literature regarding cross-sector regulatory synergy in technology-based healthcare services in Indonesia.

The importance of this study is also reinforced by the fact that the use of digital technology in the health sector has become increasingly unavoidable, whether in primary services, referral systems, or national health data management. Amid these developments, a weak legal framework may pose legal risks for service providers, medical professionals, and patients. For example, inadequate data protection standards may cause severe harm when health data breaches or misuse occur. Ambiguity in legal liability can complicate the determination of responsible parties in cases of medical errors or system failures. Likewise, uncertainty regarding the status of electronic evidence can hinder law enforcement in the health sector.

Theoretically, the digitalization of healthcare services requires reconstructing how the state regulates relationships among service providers, medical professionals, and patients in digital environments. This necessitates new concepts of legal liability, digital oversight mechanisms, and forms of patient protection in a system no longer based on physical interactions. Therefore, developing a comprehensive legal framework is an urgent necessity to ensure that digitalization in healthcare operates safely and sustainably. Practically, this study provides essential insights for policymakers in formulating more coherent, responsive, and adaptive regulations on digital healthcare services. The findings are expected to serve as a basis for drafting specific legislation on digital health services that covers service standards, liability mechanisms, governance of digital health platforms, personal data protection, and the strengthening of the state's role in overseeing digital health through competent and authorized institutions.

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[9] Nurani Ajeng Tri Utami and Nayla Alawiya, "Perlindungan Hukum Terhadap Pelayanan Kesehatan Tradisional Di Indonesia," *Volksgeist: Jurnal Ilmu Hukum Dan Konstitusi*, June 12, 2018, 11–20, https://doi.org/10.24090/volksgeist.v1i1.1605.

[10] Nofi Dwi Lestari, "Implementasi Peraturan Pemerintah Nomor 47 Tahun 2016 Tentang Fasilitas Pelayanan Kesehatan: (Studi Kasus Di RSUD Tidar Kota Magelang)," *POPULIKA* 11, no. 1 (2023): 50–56, https://doi.org/10.37631/populika.v11i1.759.

Thus, this research is important not only for enriching academic discourse on health law and technology law but also for directly contributing to the improvement of regulatory quality and legal protection in the digital transformation era. The study is increasingly relevant as public reliance on digital health services grows, along with the need to mitigate legal risks arising from a technology-based healthcare system that continues to evolve in Indonesia.[11]

This study employs a normative juridical method that focuses on examining written legal materials as the basis for analyzing legal issues related to technology-based healthcare services in Indonesia. It aims to analyze the applicable legal framework and identify various challenges in its implementation and enforcement.[12] The research uses a statutory approach by systematically reviewing various regulations related to the digitalization of healthcare services, including the Health Law, the Electronic Information and Transactions Law, the Personal Data Protection Law, and other relevant implementing regulations. In addition, a conceptual approach is used to strengthen the understanding of legal concepts such as medical liability, personal data protection, and digital healthcare service standards.[13]

The sources of legal materials used include primary legal materials consisting of legislation and official documents, secondary legal materials such as legal literature and previous research, and tertiary legal materials such as legal dictionaries and encyclopedias.[14] The data collected are analyzed descriptively and analytically by describing the existing legal framework, then evaluating its relevance, effectiveness, and consistency in addressing the needs of technology-based healthcare practices. The results of this analysis form the basis for drawing logical conclusions regarding the adequacy and effectiveness of the current legal framework.

Data Protection, Medical Liability, and the Legality of Technology-Based Healthcare Services in Indonesia

Technology-based healthcare services constitute an important innovation within the national health system, integrating information and communication technology to enhance efficiency, quality, and the reach of medical services.[15] Their implementation

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[11] Romi Indra Cahaya Debataraja, *Implementasi Peraturan Menteri Kesehatan Nomor 18 Tahun 2020 Tentang Pengelolaan Limbah Medis Fasilitas Pelayanan Kesehatan Berbasis Wilayah Pada Puskesmas Padang Bulan Medan*, Universitas Medan Area, April 8, 2023, https://repositori.uma.ac.id/handle/123456789/20261.

[12] Iman Jalaludin Rifa'i et al., *Metodologi Penelitian Hukum* (Sada Kurnia Pustaka, 2023).6

[13] Peter Mahmud Marzuki, *Penelitian Hukum* (Prenada Media, 2017).30. lihat juga Zainuddin Ali, *Metode Penelitian Hukum* (Sinar Grafika, 2021).7

[14] I. Gusti Ketut Ariawan, "Metode Penelitian Hukum Normatif," *Kertha Widya* 1, no. 1 (2013), https://doi.org/10.37637/kw.v1i1.419.

[15] Wei-Tsong Wang et al., "Technology-Based Service Encounters Using Self-Service Technologies in the Healthcare Industry," *International Journal of Human–Computer Interaction* 29, no. 3 (2013): 139–55, https://doi.org/10.1080/10447318.2012.695728; Yulia Yunara et al., "Technology- and Non-Technology-Based Primary Healthcare Innovations for the Elderly: A Systematic Review," *Enfermería Clínica*, The 4th Udayana International Nursing Conference (4th INC), vol. 33 (March 2023): S60–65, https://doi.org/10.1016/j.enfcli.2023.01.014.

includes telemedicine, teleconsultation, e-health, and mobile health (m-health). These technologies play a significant role in expanding access to healthcare, particularly for communities in remote areas, as well as accelerating the processes of diagnosis and medical management. However, to ensure that the use of these technologies does not result in violations of patient rights or potential medical errors, a clear, firm, and ethically aligned legal framework is required.[16]

The primary legal basis for digital health services in Indonesia is contained in several statutory regulations. One of these is Law No. 17 of 2023 on Health, which serves as the national legal umbrella for the health sector. Article 401(1) explicitly permits the provision of healthcare services through the use of information and communication technology, provided that professional standards, ethical principles, and patient data protection are upheld. This provision confirms that the digitalization of healthcare services has become an integral part of the national health system. Article 402 further regulates digital health by mandating guarantees for personal data protection and the accountability of medical professionals in every use of health technology.[17]

Another regulation reinforcing the legal foundation of digital health is the Electronic Information and Transactions Law (ITE Law) and its amendments. All medical data collected, stored, or transmitted digitally are categorized as electronic information and documents with legal validity. Article 26 of the ITE Law requires that the use of personal data must be based on explicit consent from the data owner, meaning that any use of patient health information must be lawful, transparent, and accountable—an especially important requirement given that medical data are classified as sensitive information.[18]

More technical provisions can be found in Minister of Health Regulation No. 24 of 2022 on Electronic Medical Records.[19] This regulation requires healthcare facilities to use secure, integrated electronic medical record systems connected to the SatuSehat platform. Detailed standards on data security, user authentication, and access limitations are provided to prevent the misuse of patient information. Additionally, Minister of Health Regulation No. 20 of 2019 on Telemedicine Services Between

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[16] Caroline Free et al., "The Effectiveness of Mobile-Health Technologies to Improve Health Care Service Delivery Processes: A Systematic Review and Meta-Analysis," *PLOS Medicine* 10, no. 1 (2013): e1001363, https://doi.org/10.1371/journal.pmed.1001363.

[17] Valeri M. P. Siringoringo* et al., "Pengaturan Perlindungan Hukum Hak-Hak Pasien Dalam Peraturan Perundang-Undangan Tentang Kesehatan Di Indonesia," *Diponegoro Law Journal* 6, no. 2 (2017): 1–13, https://doi.org/10.14710/dlj.2017.17445.

[18] Nur Hadiyati and Hayllen Stathany, "Analisis Undang-Undang ITE Berdasarkan Asas Pembentukan Peraturan Perundang-Undangan Di Indonesia," *Mizan: Jurnal Ilmu Hukum* 10, no. 2 (2021): 146–56, https://doi.org/10.32503/mizan.v10i2.1657.

[19] Fina Julia and Dwi Ridho Aulianto, "Focused Analysis of Article 29 of Indonesian Minister of Health Regulation No. 24/2022: Data Security Implementation of Electronic Medical Records at Sindangwangi Health Center, Pangandaran, West Java," *Lentera Pustaka: Jurnal Kajian Ilmu Perpustakaan, Informasi Dan Kearsipan* 11, no. 1 (2025): 61–74, https://doi.org/10.14710/lenpust.v11i1.70518.

Healthcare Facilities constitutes the first operational basis for telemedicine in Indonesia. Nonetheless, regulations for direct teleconsultation between medical professionals and patients still require expansion to ensure comprehensiveness and alignment with developments in digital medical practice.[20]

Overall, the legal framework governing technology-based healthcare services in Indonesia has been established, although it remains dispersed and not fully integrated. This demonstrates that the state has provided legitimacy for the utilization of health technologies, yet synchronization across sectors—especially between health regulations, personal data protection, and medical professional ethics—is still needed.[21]

Digital healthcare services must also be implemented based on several legal principles. The principle of legality requires that every technology-based healthcare service possess a valid legal basis and authorization, including valid professional registration (STR) and practice licenses (SIP) for medical personnel providing online services. The principle of patient rights protection demands guarantees of data confidentiality, personal information security, and the fulfillment of informed consent as stipulated in the Personal Data Protection Law. The principle of professional responsibility ensures that medical personnel remain fully accountable for every action, diagnosis, or recommendation provided, even when services are delivered remotely.[22]

In addition, the principle of data security and privacy obligates healthcare facilities to implement information security standards to prevent breaches and cyber threats, supported by oversight from the Ministry of Health and the National Cyber and Encryption Agency (BSSN).[23] Another crucial principle is equitable access, which emphasizes that health technologies must be accessible to the entire population without discrimination, including those living in areas with limited digital infrastructure.

Despite the availability of regulatory instruments, their implementation still faces several challenges. The absence of a single comprehensive regulation governing all

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[20] Azmi Asyfia et al., "Medical Record Digitization Policy: Overview of the Health Minister Regulation Number 24 of 2022," *Consilium Sanitatis: Journal of Health Science and Policy* 1, no. 2 (2023): 54–61, https://doi.org/10.56855/jhsp.v1i2.227.

[21] Yasmin Maricar et al., "Pengaruh Hukum ITE Terhadap Penegakan Hukum Di Indonesia: Analisis Kinerja Dan Efektivitas," *Karimah Tauhid* 4, no. 6 (2025): 4002–11, https://doi.org/10.30997/karimahtauhid.v4i6.18502; Muhammad Al Riyadh et al., "Analisis Kebijakan Hukum Pidana Dalam Pasal 45 Ayat (4) Jo. Pasal 27 Ayat (4) UU ITE," *Indonesian Journal of Criminal Law and Criminology (IJCLC)* 5, no. 1 (2024), https://doi.org/10.18196/ijclc.v5i1.19287.

[22] Nurlina Sinaga et al., "Analysis of the Readiness of Electronic Medical Records at the Cahaya Sangatta Mother and Child Hospital, East Kutai, Indonesia," *International Journal of Research in Social Science and Humanities (IJRSS) ISSN:2582-6220, DOI: 10.47505/IJRSS* 4, no. 5 (2023): 20–32, https://doi.org/10.47505/IJRSS.2023.V4.5.2.

[23] Mulyadi and Dwi Rahayu, "Indonesia National Cybersecurity Review: Before and After Establishment National Cyber and Crypto Agency (BSSN)," *2018 6th International Conference on Cyber and IT Service Management (CITSM)*, August 2018, 1–6, https://doi.org/10.1109/CITSM.2018.8674265.

aspects of digital health results in overlapping authorities and normative gaps. Oversight of commercial telemedicine platform providers is not yet fully optimal, while medical professionals' understanding of the boundaries of legal liability in digital services requires further improvement.

Regulatory, Institutional, and Ethical Barriers to Digital Health Service Delivery in Indonesia

Although various regulations regarding technology-based health services have been made available, their implementation in the field still faces a range of fairly complex obstacles, both in normative, technical, and institutional aspects. *First*, normative obstacles arise because there is no comprehensive and integrated regulation governing the overall implementation of digital health services. The existing regulations—such as the Health Law, the Electronic Information and Transactions Law (ITE Law), and Ministry of Health regulations related to telemedicine—remain sectoral and only regulate specific aspects. For example, Ministry of Health Regulation Number 20 of 2019 only covers telemedicine services between healthcare facilities, and therefore does not explicitly regulate direct teleconsultation between doctors and patients (doctor-to-patient teleconsultation), which has now become the most widely used model. This regulatory gap creates legal uncertainty regarding the boundaries of medical personnel responsibilities, the legality of digital prescriptions, and the validity of remote diagnoses.[24]

Second, institutional obstacles and lack of coordination among agencies also pose significant issues. The implementation of technology-based health services involves various institutions, such as the Ministry of Health, the Ministry of Communication and Information Technology, the National Cyber and Encryption Agency (BSSN), and the Indonesian Medical Council. However, coordination among these institutions has not been optimal, especially regarding supervision, digital system certification, and the enforcement of sanctions for violations of ethics and patient privacy. The absence of a solid coordination mechanism results in law enforcement processes that are slow, inconsistent, and often reactive.[25]

Third, the protection of patients' personal data remains a crucial issue. Health data is classified as highly sensitive personal data under Law Number 27 of 2022 on Personal Data Protection. However, many healthcare facilities—especially in regional areas—do not yet have adequate digital security systems. As a result, medical data leaks or misuse of information by third parties frequently occur and are difficult to

[24] Nur Rahmawati et al., "Kebebasan Berpendapat Terhadap Pemerintah Melalui Media Sosial Dalam Perspektif UU ITE," *Widya Pranata Hukum : Jurnal Kajian Dan Penelitian Hukum* 3, no. 1 (2021): 62–75, https://doi.org/10.37631/widyapranata.v3i1.270.

[25] Muhammad Prakoso Aji, "Cybersecurity Politics in Building Cyber Sovereignty in Indonesia Through Strengthening the Role of the National Cyber and Crypto Agency," *Society* 13, no. 2 (2025): 1056–71, https://doi.org/10.33019/society.v13i2.960.

address due to weak oversight. Such breaches of data confidentiality can have serious consequences for patients and damage the credibility of healthcare institutions.[26]

Fourth, issues related to medical professional ethics in digital services have also not been fully regulated in detail. The Indonesian Medical Code of Ethics (KODEKI) has not yet comprehensively accommodated ethical standards for technology-based medical practice. In practice, many medical personnel still conduct online consultations without verifying patient identity, without complete medical record documentation, and without obtaining written informed consent. This situation has the potential to trigger legal disputes if incorrect diagnoses or harmful medical actions occur.

Fifth, infrastructure limitations and low digital literacy also pose challenges. Not all regions have adequate internet access to support digital health services. Additionally, public understanding of their rights and obligations in online health services remains low. Many patients do not realize that online consultations carry the same legal consequences as face-to-face services, causing important procedures such as medical record keeping and obtaining consent for medical actions to be frequently neglected.

The protection of patients' personal data is also a crucial issue, considering that health data is categorized as sensitive personal data under Law Number 27 of 2022 on Personal Data Protection. Many healthcare facilities, especially those in regional areas, do not yet have adequate digital security systems to protect patient data. As a result, medical data leaks or misuse of information by third parties often occur and are difficult to address due to weak oversight mechanisms. Such data confidentiality breaches not only have serious consequences for patients but also damage the credibility of healthcare institutions.

In addition, issues related to professional ethics in technology-based medical services have also not been regulated in detail. The Indonesian Medical Code of Ethics (KODEKI) has not yet fully accommodated the ethical standards of digital medical practice. In practice, many medical professionals conduct online consultations without verifying patient identities, without adequate medical record documentation, and without obtaining written informed consent. This condition increases the potential for legal disputes when misdiagnoses or harmful medical actions occur.

Beyond regulatory and ethical aspects, infrastructure limitations and low digital literacy also pose significant constraints. Not all regions have adequate internet access to support digital health services. At the same time, the public has not fully understood their rights and obligations in online health services. Many patients remain unaware that digital consultations have the same legal consequences as face-to-face services, causing important procedures such as medical record documentation and obtaining consent for medical actions to be frequently neglected.

Strengthening Law Enforcement in the Era of Digital Health Services

[26] Agung Arafat Saputra and Oksidelfa Yanto, "National Security Strategy In The Field Of Cyber And Cryptography Through Electronic Certification Services," *Jurnal Hukum Mimbar Justitia* 9, no. 2 (2023): 436–56, https://doi.org/10.35194/jhmj.v9i2.3981.

The main challenge in law enforcement for technology-based health services lies in the legal system's ability to adapt to very rapid technological developments. Law tends to move reactively, while technological innovation evolves dynamically. In this context, there are several important challenges that the government and law-enforcement authorities must consider.

First, the challenge of cross-sector regulatory harmonization. Regulating digital health requires integrating health law, information-technology law, personal-data protection, and criminal law. Without harmonization, overlapping authorities and inter-agency interpretive conflicts will continue to occur. For example, in cases of medical-data breaches, it remains unclear which institution has the authority to conduct an investigation—whether the Ministry of Health, the National Cyber and Encryption Agency (BSSN),[27] or the police. Therefore, an integrated regulation in the form of a Government Regulation or even a specific statute on National Digital Health Services is needed.

Second, the challenge of legal evidence and determining liability in digital services. In telemedicine practice, proving medical negligence becomes more complex because examinations, diagnoses, and communication take place through electronic media. Digital evidence—whether in the form of recorded conversations, electronic medical records, or online consultation results—must meet standards of authenticity, integrity, and reliability to be admissible as valid evidence. Consequently, national standards for digital forensic evidence in the health sector are required to provide legal certainty for patients and medical personnel.

Third, the challenge of protecting patients' rights in the digital space. Patients must be guaranteed full access to their rights as provided in Article 56 of the Health Law, including the right to medical information, data confidentiality, and safe and high-quality services. The government must ensure that commercial telemedicine platforms fall under strict supervision and are integrated into national systems such as SatuSehat. Otherwise, data security and service quality will be difficult to guarantee.

Fourth, the challenge of improving legal and ethical literacy for medical personnel and the public. Many medical professionals do not fully understand the limits of their legal responsibilities when providing remote services. Likewise, the public often assumes that online consultations do not carry the same legal implications as in-person services. For this reason, legal education, digital-ethics training, and regulatory dissemination have become urgent needs.

Fifth, the challenge of enforcing sanctions and supervising the digital-health system. Law enforcement faces obstacles due to the lack of effective oversight mechanisms. Many telemedicine providers operate without official licenses from the Ministry of Health and are difficult to prosecute due to limited administrative evidence and weak capabilities in tracing online activities. Therefore, a national data-based

[27] Kiki Puspo Arianty, "Analysis of Information Security Management System Implementation at BSN," *Jurnal Informatika: Jurnal Pengembangan IT* 10, no. 1 (2025): 119–29, https://doi.org/10.30591/jpit.v10i1.8211.

monitoring system capable of supervising the activities of digital-health service providers in real time is required.

In light of these challenges, it becomes evident that the rapid digitalization of health services demands not only regulatory adjustments but also a paradigm shift in how the state interprets its role in safeguarding public health in the digital era. The government must balance innovation and protection, ensuring that technological progress does not outpace the ethical and legal safeguards necessary to protect citizens. This requires proactive policymaking, stronger inter-agency collaboration, and continuous evaluation of legal frameworks to keep pace with emerging technologies. Without such a forward-looking approach, the risks associated with digital health—such as data breaches, medical errors, and unregulated service providers—may undermine public trust and hinder the long-term development of a safe, reliable, and equitable digital health ecosystem.

Conclusion

The legal framework governing technology-based health services in Indonesia has a relatively strong foundation through various regulations, such as Law Number 17 of 2023 on Health, Law Number 11 of 2008 on Electronic Information and Transactions (ITE), and several Minister of Health Regulations. However, these regulations remain sectoral in nature and are not yet fully comprehensive in addressing all aspects of digital health services, particularly regarding legal liability, service standards, and the protection of patient data.

In practice, the implementation and enforcement of laws related to technology-based health services still face numerous challenges, including weak inter-agency coordination, suboptimal personal-data protection, and low levels of legal and digital-ethics literacy among medical professionals and the public. Therefore, regulatory harmonization across sectors, strengthened government oversight, and the establishment of specific regulations that comprehensively govern the digital health ecosystem in Indonesia are urgently needed. These measures are essential to ensure legal certainty, improve service quality, and provide fair protection for all parties involved.

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