Legal Protection of Electronic Medical Records in Indonesia

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Abstract. Technological and medical advancements necessitate that hospitals adopt electronic medical records (EMRs) to remain up-to-date. EMRs streamline the management of patient information for hospital staff, doctors, and healthcare professionals. EMRs improve healthcare delivery by facilitating quick data retrieval, supporting medical decision-making, and optimizing medication management. Unlike Electronic Health Records (EHRs), which compile patient EMRs within healthcare centers, EMRs focus on individual records. Indonesian regulations, including Articles 46 and 47 of Law Number 29 of 2004 and Minister of Health Regulation Number 269 of 2008, govern medical records' legal aspects. Under the ITE Law, electronic medical records are admissible evidence. Minister of Health Regulation No. 24 of 2022 requires healthcare facilities to maintain electronic medical records, replacing Regulation No. 269 of 2008.

Keywords: Legal Aspects, Medical Records, Electronic Medical Records.

1 Introduction

Medical records comprise information regarding a patient's health, and it is imperative for hospitals to safeguard this data. This pertains to preserving the confidentiality of the patient's medical condition as assessed by the physician. Consequently, hospitals require a system that ensures the safety and ease of data retrieval from medical records while upholding the confidentiality of the information. Due to technological advancements and progress in the healthcare industry, electronic medical records are now becoming increasingly prevalent. This advancement streamlines data storage and retrieval for hospitals. Moreover, it diminishes the reliance on paper for creating and storing medical records, eliminating the need for substantial storage space and specific room conditions. Additionally, the risk of losing portions of manual medical records due to pages falling out or becoming damaged is also mitigated. [1]

The concept of medical records encompasses a broad scope, extending beyond mere documentation. It constitutes a system for managing medical records, with recording being just one component of this comprehensive system. Within a hospital, various departments, such as the Inpatient Unit, Emergency Unit, and Outpatient Unit, rely on medical records for their operations. Electronic medical records represent a type of medical record generated via

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electronic systems. This electronic system operates as a digital database housing information related to patients' health statuses and the medical treatments they have received over the course of their lifetimes.

Adopting this digital system will streamline the management of patient data for healthcare staff, doctors, and medical professionals. Furthermore, it enables patients to access their own health information, eliminating the need for requesting physical documents or reiterating their medical histories.[2] The Minister of Health Regulation (PMK) number 24 of 2022 regarding Medical Records has set in motion the shift from another potential challenge that may emerge pertains to financial considerations, which are of notable importance as they necessitate investments in infrastructure, including computers, networks, electricity, security systems, and consulting services, particularly in the realm of information technology. There are also queries that can arise, such as "What measures can hospitals take to safeguard themselves in case of a patient's claim?" or "How is the authenticity of electronic documents assured?" In the event of an error in recording a patient's medical information, does the electronic system possess a logging function to preserve a record of prior data entries, ensuring the identification of the person who made the entry and the nature of the modified data?

History of Medical Records

The origins of medical records trace back to the unearthing of a painting illustrating medical procedures, including finger amputation, on a stone cave wall in Spain. This painting, believed to be around 25,000 years old, from the Paleolithic era, is considered by experts as evidence that the practice of medical records has ancient roots. Diverse forms of records, such as carvings, wall paintings in pyramids, inscriptions on bones, trees, and dry leaves, which are believed to be remnants from ancient Egyptian eras, depict the progressive advancement of medical procedures in parallel with human civilization's evolution. Additionally, between 980 and 1037 AD, numerous medical books authored by Avicenna (Ibn Sina) were discovered, chronicling his experiences in patient treatment. Traditional herbal medicine formulas that have been handed down through generations in Indonesia are documented in various forms, such as inscriptions on palm leaves and other methods that evolved with the changing times.3. In this era, medical records have notably gained significance within many hospitals and associations of healthcare professionals in Western nations. [3]

In 1902, the American Hospital Association initiated its initial discourse regarding medical records. By 1905, several doctors had proposed ideas for enhancing medical record-keeping. During the same year, Dr. George Wilson from Portland, Oregon, presented his manuscript titled "A Clinical Chart for the Record of Patients in Small Hospitals" at the 56th annual meeting of the American Association. This manuscript was subsequently published in the Journal of the American Association on September 23, 1905. The content of this manuscript underscored the significance of comprehensive medical records for the well-being of both the patient and the hospital. [4]

In Indonesia, hospitals have been documenting patient medical services since the pre-independence era. However, the execution and organization of these records have not adhered to proper information system standards, as they have traditionally relied on the preferences of individual hospital administrators.

Following the introduction of Government Regulation no. 10 of 1960, which mandated that all healthcare professionals must maintain medical confidentiality, including medical

record files, and subsequently, Minister of Health Decree of the Republic of Indonesia No.034/Birhup/1972, there is now clear guidance for hospitals to ensure the proper and accurate management of medical records. In Chapter I, Article 3 of this decree, it is stipulated that, to facilitate the execution of a comprehensive hospital master plan, each hospital is obligated to:

1. Possess and keep current statistical data.

2. Maintain medical records in accordance with established regulations.

The purpose and goal of these regulations are to ensure the effective operation of medical record administration in healthcare institutions, including hospitals. From 1972 to 1989, the management of medical records in hospitals did not meet expectations, prompting the government to issue Minister of Health Regulation No. 749a/89 to reinforce medical record management. It is anticipated that Permenkes No.749a/89 will serve as the legal foundation for all related matters.

Functions and Uses of Medical Records

Medical records encompass a comprehensive scope, extending beyond the act of documentation. They are recognized as a systematic approach to managing medical records. The process of managing medical records is a sequence of activities that commences when the patient arrives at the hospital. It progresses through the recording of the patient's medical information while receiving medical care at the hospital, and then extends to the management of medical record files. This includes the organization of storage, as well as the retrieval and relocation of files from storage to fulfill requests or for various other purposes, such as borrowing patient records. [5]

Medical records serve as documented evidence of the healthcare services offered by doctors and other healthcare professionals to their patients. They represent the outcome of the collaborative efforts of multiple healthcare providers working towards a patient's recovery. This written confirmation of services is completed following the assessment of medical procedures and treatments, ensuring that the care provided can be accurately documented and accounted for. [6]

The service process commences with the identification of the patient, encompassing both their personal details and the progression of their medical condition, followed by examinations, treatments, and other medical interventions. Medical records are documents that should be held in strict confidence, with access restricted to healthcare providers and the patients themselves. This confidentiality is essential for establishing clarity regarding the associated costs. Therefore, the philosophy of Medical Records encompasses values of an administrative, legal, financial, research, educational, documentary, accurate, informative, and accountable nature. [7]

The primary goal of medical records is to facilitate well-organized administration within the framework of enhancing healthcare services in hospitals. Without the backing of an effective and accurate medical record management system, achieving the desired level of organizational success in hospital administration becomes unattainable. Moreover, administrative efficiency stands as a crucial determinant in the endeavor to provide healthcare services in hospitals..

Electronic Medical Records

Electronic Medical Records (EMR) are medical records generated through an electronic system designed for managing patient records, including their personal information, examinations, treatments, procedures, and other services rendered to them. Unlike traditional medical records that rely on paper-based and printed documents, EMR utilizes information technology devices to gather, process, and store data within electronic systems employed by healthcare facilities. [8]

Every healthcare institution has the liberty to select an electronic system for electronic medical records, whether it's one developed by the Ministry of Health, the healthcare facility itself, or a system provided through collaborative efforts with an external organizer. Nonetheless, every Electronic Medical Record (RME) must include, at a minimum:

1. Patient Registration;

The process of Patient Registration is a vital initial stage in establishing an Electronic Medical Record (RME). It entails the documentation of key patient identity information, such as their name, date of birth, address, and other essential data for unique patient identification. An effective registration procedure ensures that each patient has a precise and readily accessible record, facilitating healthcare providers in delivering tailored and suitable care.

2. Distribution of Electronic Medical Record data;

The distribution of data in Electronic Medical Records (RME) encompasses the control of access to patient health information. This entails the establishment of security and privacy protocols to guarantee that only authorized individuals can retrieve the information. Proficient data distribution is pivotal in upholding the confidentiality of patient medical data and promotes cooperation among healthcare team members by granting them suitable access to pertinent information.

3. Fill in clinical information;

Entering clinical data is a fundamental component of Electronic Medical Records (EMR), entailing thorough recording of the patient's health status, diagnosis, and treatment history. This data input procedure contributes to the development of a comprehensive medical record, offering a holistic perspective of the patient's health. Through the accurate and detailed entry of clinical information, healthcare practitioners can make well-informed decisions and deliver more efficient care.

4. Electronic Medical Record information processing;

The processing of Electronic Medical Record (EMR) information entails the examination and comprehension of recorded health data. This process involves the manipulation of data to gain a more profound insight into a patient's health status, encompassing trends, patterns, and possible medication interactions. Competent information processing empowers healthcare professionals to make well-informed decisions, enhance patient care, and contribute to broader medical research efforts.

5. Data input for financing claims;

The data entry phase for financial claims within Electronic Medical Records (EMR) is a significant step associated with recording the necessary information for processing insurance claims or healthcare payments. It entails the precise documentation of medical procedures, diagnoses, and other essential details required to facilitate correct financial transactions.

Diligent data entry not only enhances administrative effectiveness but also guarantees that healthcare providers receive fair compensation for the services they have delivered.

6. Electronic Medical Records Storage;

The storage of Electronic Medical Records (EMR) entails the establishment of a secure and effective infrastructure that upholds the integrity, accessibility, and confidentiality of patient health information. A robust storage system guarantees the swift retrieval of medical data as necessary, all the while maintaining stringent security and privacy protocols.

7. Quality assurance of Electronic Medical Records;

Quality assurance within Electronic Medical Records (EMR) encompasses a set of procedures and guidelines designed to guarantee the precision, safeguarding, and

uninterrupted availability of health data within the system. This entails routine audits, the assessment of data quality, and the application of security measures aimed at reducing the potential for inaccuracies or breaches of privacy. Efficient quality assurance not only bolsters the credibility of medical information but also instills confidence in both patients and healthcare practitioners, assuring them that the EMR system is dependable and aligns with stringent clinical practice standards.

8. Transfer the contents of Electronic Medical Records

The transfer of content within Electronic Medical Records (EMR) entails a secure and well-documented procedure for transmitting patient health data when transitioning between healthcare providers. This is vital for maintaining uninterrupted care as patients transfer from one facility to another. A proper transfer process encompasses sending comprehensive and precise data, making sure that all the information required to sustain the continuity of care is readily available to the new healthcare team. Consequently, the transfer of EMR content establishes the groundwork for productive cooperation among the diverse stakeholders involved in patient care. [9]

This is the core feature that should be inherent in EMR, yet it can be customized to accommodate the specific requirements and preferences of the healthcare facility. Beyond in-person medical care, telemedicine is also encompassed within the services that are mandated to utilize EMR. Electronic Medical Records (EMR) have demonstrated their effectiveness as a tool for expediting healthcare services in both hospitals and clinics. Thanks to their rapid and efficient data retrieval capabilities, EMRs empower doctors and nurses to instantly access patient health information, leading to enhanced medical decision making and improved medication management. The outcome is an increase in the efficiency and quality of healthcare, which positively influences patient satisfaction and fosters more coordinated care. EMR technology serves as a prominent illustration of how technological advancements can revolutionize and expedite the healthcare sector.

One of the most prominent advantages of EMR lies in its capacity to swiftly and effectively grant access to patient information. Healthcare providers, including doctors and nurses, can effortlessly and digitally retrieve patient health data, a capability that proves particularly crucial in emergency scenarios. However, when electronic medical records are not synchronized or integrated with systems at other healthcare facilities, it can pose challenges for patients and healthcare practitioners at different locations. Patients may fail to recall diagnoses, tests, or medications administered at prior healthcare facilities.

Consequently, the physician may need to repeat a comprehensive examination in order to provide adequate treatment.

EMR is subject to regulations that prioritize the security of patient data. Patient information within EMR is encrypted and can only be accessed through rigorous access controls, ensuring the protection of patients' personal information. Additionally, EMR includes a data loss prevention system and offers data backup and recovery to prevent the loss of valuable medical information. Beyond these aspects, EMR also endeavors to enhance the quality of service, ensuring the security, confidentiality, integrity, and accessibility of medical records. Its overarching goal is to facilitate the implementation and management of digital-based, integrated medical records.

2 Method

This paper employs a normative legal research methodology, which involves the examination of library materials or secondary data to investigate legal issues. The reason for employing the normative juridical approach in this study is to not only analyze existing library resources, including books, magazines, newspapers, media, the internet, published research findings, and various sources, but also to assess ongoing community cases for supplementary information.

Broadly, in legal research, data can be categorized into two primary groups: primary data and secondary data. Primary data pertains to information acquired directly from the source, whereas secondary data comprises information collected and organized by third parties. Given that this research employs a normative legal approach, the emphasis is on the utilization of secondary data, which encompasses legal materials and legal documents. The legal materials employed in this research encompass primary legal materials, secondary legal materials, and tertiary legal materials.

a. Primary legal materials, namely

1. Law Number 29 of 2004 concerning Medical Practice.

2. Law Number 36 of 2009 concerning Health.

3. Law Number 44 of 2009 concerning Hospitals.

4. Law Number 11 of 2008 concerning Information and Electronic Transactions.

5. Minister of Health Decree Number 133 of 1999 concerning Hospital Service Standards.

6. Government Regulation Number 32 of 1996 concerning Health Workers.

7. Minister of Health Decree Number 034 of 1972 concerning Hospital Planning and Maintenance.

8. Minister of Health Regulation Number 269 of 2008 concerning Medical Records.

b. Secondary legal materials are resources utilized to elucidate primary legal materials, encompassing items such as books, literature, articles, papers, and writings associated with Medical Records.

c. Tertiary legal materials encompass resources employed to expound upon primary legal materials and secondary legal materials, and these may include dictionaries, legal journals, and similar references.

3 Discussion

In Indonesia, the regulation of medical records has been legally established through the Minister of Health of the Republic of Indonesia Decree No. 031/Birhup/1972, which mandates that all hospitals are required to conduct medical recording and reporting, as well as maintain hospital statistics. In line with the explanation provided in Article 46, paragraph (1) of Law Number 29 of 2004 regarding Medical Practice, "Medical Records" are defined as files containing documentation and notes pertaining to patient identity, examinations, treatments, procedures, and other services administered to the patient. The term "officer" is defined as a healthcare professional, including doctors, dentists, or other health workers, who directly deliver healthcare services to patients. Subsequent to this determination, the hospital proceeds with the planning and upkeep of its operations, as outlined in Chapter I, Article 3, which reads as follows:

a. Possess and ensure the currency of statistics..

b. Adhering to the established regulations for the maintenance of medical records[4].

PERMENKES Number 269/Menkes/Per/III/2008 clarifies that medical records encompass documents and notes concerning patient identity, examinations, treatment, procedures, and other services rendered to patients. Furthermore, the Indonesian Doctors Association (IDI) has defined medical records in Attachment to SK PB IDI Number 315/PB/A.4/88 as written records or descriptions of the services delivered by medical or healthcare providers to a patient. [8]

In accordance with the Medical Practice Law No. 29 of 2009, Article 46, paragraph (1) stipulates that every practicing doctor or dentist is obligated to maintain a medical record. The primary responsibility for ensuring the completeness of medical record entries rests with the attending doctor or dentist. It is the attending doctor's or dentist's duty to guarantee that the medical record's contents are both comprehensive and accurate. While recording certain medical information such as medical history, physical examinations, and discharge summaries, the responsibility may be delegated to skilled assistants and other physicians. Furthermore, Article 79, paragraph (2) of Law No. 29 of 2009 regarding Medical Practice states:

> 1) “Each doctor or dentist can face a maximum penalty of either one year of imprisonment or a maximum fine of fifty million.;
>
> 2) Intentionally failing to create medical records as prescribed in Article 46, paragraph (1).

Hospital administrators bear the responsibility of furnishing the medical records unit or department with the necessary resources and infrastructure, encompassing workspaces, storage, files, computer systems, auxiliary equipment, and personnel. This provision is essential to enable medical records officers to perform their duties effectively and efficiently. These provisions are crucial for ensuring that all tasks described in the medical records job

descriptions can be executed optimally by the medical records officers within their respective healthcare institutions[5].

The responsibilities of hospital leaders regarding medical records are delineated in Minister of Health Regulation No. 269 of 2008 on Medical Records, specifically in Article 14. This article stipulates that "Heads of health service facilities bear responsibility for any loss, damage, falsification, and/or unauthorized use of medical records by individuals or entities lacking the right to access them." Consequently, in the event of a violation of this provision, hospital management may face sanctions in accordance with the transgression. These sanctions can take the form of administrative measures, including verbal warnings, written warnings, or even permit revocation, as specified in Article 17 of Minister of Health Regulation No. 269 of 2008 on Medical Records. [9]

EMR involves the utilization of information technology devices to gather, store, process, and retrieve data from patient medical records (MRs) in hospitals. This data is stored within a database management system that aggregates diverse sources of medical information. In fact, numerous contemporary hospitals have integrated EMR with the Hospital Management Information System (SIMRS) application, which serves as a central system encompassing not only Electronic Medical Records but also additional functionalities such as administration, billing, nursing documentation, reporting, and a scorecard dashboard. [10]

EMR can similarly be understood as a software ecosystem that encompasses clinical data storage, clinical decision support systems, the standardization of medical terminology, computerized data entry, and documentation related to medical and pharmaceutical matters. It serves as a valuable tool for healthcare professionals, enabling them to document, monitor, and oversee the healthcare services provided to patients within hospital environments. From a legal perspective, the information within EMR represents a legally recognized record of the services offered to patients, and the hospital retains the authority to store such data.

EMR stands apart from Electronic Health Records (EHRs). EHR is essentially an aggregation of individual patient EMRs from various hospitals and healthcare centers. [11]Patients have the accessibility and ownership of their EHR, and the data can be utilized at different healthcare facilities for subsequent treatment requirements. The actualization of EHR depends on the existence of a standardized EMR data format within each hospital to enable data integration. To make EHR a reality, an integrated system is imperative, and this system requires mutual agreement and collaboration among all healthcare facilities in a specific area or even on a broader scale, potentially at a national level.

In Indonesia, the adoption of EMR innovation has been sluggish. Several factors contribute to the slow growth of EMR, including:

a. There is widespread suspicion among various stakeholders that EMR lacks a well-defined legal framework,

Especially concerning the assurance of data protection, encompassing privacy, confidentiality, and general information security, it is commonly believed that encryption technology, along with various biometric identifiers such as fingerprints, offers a higher level of data protection compared to conventional signatures. However, the primary challenge lies in the legal realm rather than the technical one. Frequently asked questions revolve around how hospitals can safeguard patient data from unauthorized access, how the validity of electronic documents can be

established, and how errors in recording patient medical information can be rectified. To address these concerns, comprehensive regulations and legal frameworks are imperative. However, the creation of such regulations often lags behind the rapid advancements in information technology. For instance, in some states in the US, hospitals only print EMRs when they are intended for use as legal evidence. Conversely, at Wan Fang Hospital in Taipei, the practice involves maintaining a printed MR that must be signed by the doctor as a hard copy of the patient's EMR..

b. The subsequent challenge relates to traditional factors, such as the availability of financial resources.

The financial aspect is a critical concern as hospitals need to allocate resources for information technology infrastructure, including computers, wired and wireless networks, electricity, security systems, consultation, training, and more. Hospitals often operate within constrained budgets, particularly when it comes to investing in information technology.

c. EMR is not regarded as a top priority.

This preference is due to the prioritization of other systems like electronic billing systems (computerized billing systems), accounting systems, payroll systems, and so on. Hospitals believe that these systems are favored because they can ensure swift, transparent, and accountable financial management for the hospital. [12]

The use of EMR as legal evidence is reinforced by Law No. 19 of 2016, which amends Law Number 11 of 2008 concerning Electronic Information and Transactions (UU ITE), in conjunction with Minister of Health Regulation Number 269 of 2008. Article 13, Paragraph (1), letter b of PERMENKES stipulates that MR can be employed "as a means of legal evidence in the process of law enforcement, medical and dental discipline, and the enforcement of medical and dental ethics."

Articles 5 and 6 of the ITE Law outline:

Article 5 :

1. Electronic information, electronic documents, and printouts are considered legally valid evidence..

2. Electronic information, electronic documents, and printouts, as defined in Paragraph (1), are an extension of legal evidence in accordance with the prevailing Procedural Law in Indonesia.

3. Electronic information and electronic documents are deemed valid when they are generated through an electronic system that adheres to the regulations specified in this Law.

Article 6 :

Unless there are specific provisions other than those outlined in Article 5, Paragraph (4), which mandate information to be in a written or original form, electronic information and electronic documents are recognized as valid as long as they can be accessed, displayed, maintain their integrity, and provide an accountable explanation of a situation.

The presence of Electronic Information and/or Electronic Documents is obligatory and considered as legitimate evidence, offering legal assurance concerning the execution of Electronic Systems and Electronic Transactions. This is particularly applicable to evidence and issues linked to legal proceedings conducted through Electronic Systems. In the case of Electronic Information and/or Electronic Documents related to interception, wiretapping, or recordings as part of wiretapping, these activities must be conducted within the framework of law enforcement, upon the request of the police, prosecutor's office, and/or other institutions whose authority is specified by the law. [13]

According to Article 1, Paragraph (1) of the Republic of Indonesia Ministry of Health Regulation Number 269 of 2008 regarding Medical Records, medical records are defined as records and documents that include patient identity, examinations, treatment, actions, and other services provided to patients. Article 2, Paragraph (1) of the same regulation stipulates that these records must be in written form, complete, and clear, or in electronic format. Furthermore, Article 2, Paragraph (2) of the Republic of Indonesia Minister of Health Regulation Number 269 of 2008 specifies that the management of electronic medical records is governed by separate regulations. Consequently, electronic medical records represent the latest advancement in the field of information technology for organizing patient information in hospitals, as outlined in Article 46, Paragraph (1) of the Republic of Indonesia Law Number 29 of 2004 and reinforced by Republic of Indonesia Minister of Health Regulation Number 269 of 2008. Pertinent legal aspects regarding electronic medical records' completeness are addressed in Article 46 and Article 47 of Republic of Indonesia Law Number 29 of 2004 and Minister of Health Regulation of the Republic of Indonesia Number 269 of 2008.

The security system for electronic medical records is addressed in Article 2, Paragraph (2) of Republic of Indonesia Minister of Health Regulation Number 269 of 2008, which mentions that the implementation of electronic medical records is governed by separate regulations. These regulations are further supported by Republic of Indonesia Law Number 19 of 2016 concerning Electronic Information and Transactions (UU ITE) and Government Regulation Number 71 of 2019 concerning the Implementation of Electronic Systems and Transactions (Government Regulation for the Implementation of Electronic Systems and Transactions). The utilization of electronic medical records, which is still in the developmental stage of technology, presents ethical and legal challenges because the current regulations do not provide clear guidance to address these challenges.

Therefore, new, specific regulations pertaining to electronic medical records are needed in Indonesia to ensure their effective use. Electronic medical records should incorporate systems designed to minimize the risk of information leakage. Each user should be required to have a PIN and password, or alternatively, use biometric identifiers such as fingerprints or iris patterns for identification. Additionally, medical data can be compartmentalized, ensuring that authorized personnel can only access specific sections of the medical records. For instance, a registration officer would be granted access within the registration scope, a billing officer could access and input financial data exclusively, and the examining doctor would only have access to enter the patient's medical data, provided the medical record has been fully completed accurately.

The implementation of Electronic Medical Records requires careful consideration of various factors, including the Patient Identification System and the Assignment of Medical Record Numbers. Patient identification is a process that occurs when a patient first registers

during their initial visit, where they provide their identity information in compliance with the relevant regulations. This patient identification data remains valid for the duration of the patient's receipt of healthcare services. In the event of any changes in address or marital status, patients can update this information with the registration officer during their subsequent visits. With the use of a digital system, patients will receive an automatic medical record number generated based on their visit. Each time they register and their data is saved, a unique number is assigned to the patient.

Several new policies have been introduced to accommodate digital procedures for completing electronic medical records, including:

1) Any consultation conducted with a patient needs to be promptly recorded in the patient's electronic file on the computer. Delaying this entry increases the risk of forgetting, as opposed to manual recording, which may still be acceptable within a 24-hour timeframe.

2) Every record created by physicians or other healthcare professionals should be assigned an identity code, serving as a replacement for the typical use of initials or signatures within a medical record system.

3) Each instance of deleting or modifying information must be executed with the appropriate PIN and be documented in the medical records department under the supervision of the department head, as there is a concern regarding potential fraudulent activities.

4) Digital medical record forms have been categorized into various patient activity groups, including outpatient, inpatient, and emergency patients, each tailored to meet their specific requirements. These digital forms mirror their manual counterparts in structure and purpose.

Access to medical records must be rigorously controlled to prevent unauthorized alterations or deletions of medical data. Some data should be designated as "read only" to prevent tampering by those without the proper permissions. Even authorized individuals who can make modifications or additions should be required to leave an identifiable digital trail of any changes they make, including details of what was altered and when the changes occurred.

When using an electronic medical record as evidence, it becomes essential to establish the accuracy of the recorded data and verify that it was entered by an authorized personnel without manipulation. This requires meticulous system preparation. For instance, authorized health workers must be given proper access and a unique PIN code (Personal Identification Number) to open and input patient data truthfully. In the event of data entry errors, the system should allow corrections but not deletions of previous data. Instead, it should provide a designated area to amend or replace the erroneous data. This way, the integrity and authenticity of the information can be maintained, and accountability can be ensured.

There are four fundamental principles that electronic medical records must adhere to in order to be recognized as credible evidence or factual records:

a) Recorded in accordance with relevant procedural regulations.

b) Created promptly at or shortly after the delivery of services.

c) Stored in compliance with the relevant procedural regulations..

d) Created by authorized healthcare professionals who possess the requisite rights, knowledge, and competencies in accordance with the standards of their roles.

The concerns related to the confidentiality and security of medical record documents in the context of using electronic medical records have already been addressed in Article 16 of Law no. 11 of 2008 concerning Information and Electronic Transactions. [14]

As technology advances, the confidentiality and security of electronic documents have significantly improved. One common security measure is the use of passwords to protect electronic medical records, ensuring that only authorized individuals can access the original file or a copy provided to the patient. This enhances security compared to manual medical records. Additionally, restrictions can be placed on the copying or printing of electronic medical records, similar to how multimedia files (such as songs or videos) are protected by copyright, ensuring that only designated individuals can make copies or print them. Electronic medical records offer a higher level of security, making them more resilient against data loss or damage, as electronic documents are easier to back up compared to manual records. Electronic medical records offer greater capabilities than those specified in Minister of Health Regulation No. 269 of 2008 regarding Medical Records.[15] For example, while the regulation mandates storing medical records for at least 5 years from the date of patient treatment (Article 7), electronic medical records can be stored for decades on compact disk storage media (CD/DVD). This form of storage is more space-efficient than manual medical records, which require extensive storage space and specialized care. Furthermore, electronic medical records facilitate the utilization of medical records for research, educational purposes, statistical analysis, and health service billing. This ease of use is possible because the contents of electronic medical records can be seamlessly integrated with hospital or clinic information system programs or software, facilitating data processing and educational activities while maintaining the necessary confidentiality. This is a complex task to achieve with manual medical records. However, Law No. 11 of 2008 regarding Electronic Information and Transactions has established that electronic documents, including electronic medical records, are legally valid for use as evidence in legal proceedings. Consequently, with the presence of this law, electronic medical records can be employed in Indonesia to enhance the quality of healthcare services and afford legal protection to doctors, healthcare facilities, and patients in cases involving legal disputes.

As per Minister of Health Regulation No. 24 of 2022 regarding Medical Records, all Healthcare Facilities are obligated to adopt Electronic Medical Records in compliance with the stipulations of this Ministerial Regulation by no later than December 31, 2023. The implementation of electronic medical records is expected to yield advantages for both patients and healthcare institutions. The general benefits of employing electronic medical records encompass the maintenance of patient health and treatment records, serving as evidence in legal proceedings, upholding medical and dental ethics, facilitating educational activities, supporting research endeavors, forming the foundation for healthcare financing, and contributing to healthcare statistical data. Electronic medical records are required to be meticulously and precisely filled out as they encompass crucial details such as patient identity, medical history, examination processes, and treatment records. These electronic records serve various functional aspects, encompassing administrative, medical, legal, financial, research, educational, and documentation aspects. This comprehensive approach illustrates that electronic medical records offer extensive utility advantages, impacting not

only healthcare providers and patients but also various stakeholders involved in healthcare services.

3 Conclusion

To expedite and stimulate hospitals' adoption of EMR, it's essential to actively promote awareness of its advantages and potential. For instance, EMR is not only proficient in storing extensive patient data but can also be endowed with supplementary features like artificial intelligence that replicates expert skills, capable of issuing alerts in the event of medication errors or drug interactions. Furthermore, the EMR system has the capability to archive multimedia medical information, granting accessibility at any time and from anywhere. We've observed numerous advantages associated with EMR adoption; nevertheless, transitioning hospitals from manual systems to EMR is not a swift process and demands substantial effort. It necessitates a dedicated patient safety movement campaign, potentially at a national level, to accelerate this transition.

The legal framework for the management of medical records has been established, commencing with the enactment of Government Regulation No. 10 of 1960. Furthermore, it has been reinforced by Law No. 19 of 2016 on Amendments to Law No. 11 of 2008 concerning Electronic Information and Transactions (UU ITE), which bolsters the implementation of electronic medical records. The recent introduction of Minister of Health Regulation No. 24 of 2022 regarding Medical Records mandates that all Health Service Facilities must adhere to its provisions and maintain Electronic Medical Records by no later than December 31, 2023

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