

REVIEW

THE PERPLEXITIES OF E-DISCOVERY IN THE INDIAN HEALTHCARE SYSTEM - A NARRATIVE REVIEW

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ABSTRACT

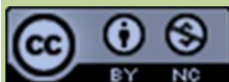
With the rapid advances in medical technology and the digitization of healthcare systems, the importance of collecting and analyzing digital evidence in the medical field has grown significantly. This evidence plays a crucial role in investigating medical malpractice cases and preparing for legal proceedings in India. As medical devices and electronic health records become more prevalent, vast amounts of data are generated, stored, and accessed. While having substantial evidence to support medical claims is beneficial, it is essential to find a balance between retrieving and admitting digital evidence while respecting patient privacy. This article examines the use of electronic evidence in Indian medical litigation, the challenges it presents, and the initiatives taken to manage these challenges. However, the absence of clear legal guidelines on electronic discovery in medical cases exacerbates the problem. Medical procedure rules often fail to address electronic discovery, resulting in inconsistent case law across different courts in India and the world. Consequently, healthcare practitioners are left to develop ad hoc solutions through informal discussions and negotiations. Thus, this paper highlights the necessity for a comprehensive legal framework and active judicial management to handle electronic discovery in the medical domain.

Keywords: *Digital healthcare; Medical malpractice; Medical technology; Patient privacy*

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ARTICLE HISTORY

Received: 14.07.2023 Received in revised form: 25.08.2023
Accepted: 04.09.2023 Available online: 22.12.2023



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INTRODUCTION

In the vast realm of healthcare, the pursuit of truth is both a moral obligation and a legal necessity. Enter e-discovery, revolutionizing information retrieval in litigation. Within this digital labyrinth, complexities challenge those navigating its corridors.

Imagine a medical malpractice lawsuit against a prestigious hospital. The plaintiff believes critical electronic evidence lies concealed within the

hospital's network. Patient records and internal communications could hold the key. However, attorneys face a maze of complexities that could make or break their case¹.

The field of e-discovery in healthcare is rife with legal dichotomies. One such dilemma revolves around the admissibility of printouts of computer data as evidence, which poses challenges when converting dynamic electronic medical records into static documents². Metadata-related concerns and the presence of pop-up warnings in electronic medical record systems also contribute to the legal dichotomies, requiring careful navigation to ensure accurate and relevant information is obtained. Balancing the preservation of record integrity with admissibility as evidence remains a constant challenge in this intricate landscape³.

The process of e-discovery in the healthcare industry encompasses various stages, including identification, preservation, collection, processing, evaluation, and production of electronic information relevant to a legal dispute. While the concept of discovery is not novel, the proliferation of digital communication channels and the advent of electronic records have

significantly amplified the volume and intricacy of data that necessitates examination.

In an era of technological progress, one might assume that deciphering the enigmas concealed within the digital realm would be a straightforward endeavor. However, the reality proves to be much more intricate. Vast quantities of data, often dispersed across disparate systems, demand the expertise of proficient professionals armed with cutting-edge tools to meticulously reconstruct the evidential jigsaw puzzle. The challenges are manifold, encompassing concerns regarding data security, privacy, technical acumen, and the ability to distill actionable insights from a vast expanse of digital clutter.

Exclusion Criteria:

Irrelevance: Sources that did not directly discuss e-discovery challenges within the Indian healthcare context were excluded.

Non-English sources: Given the limitations of language comprehension, sources in languages other than English were excluded.

Publication date: In alignment to present contemporary insights, sources published before a predetermined date (before January 2000) were excluded.

Duplicates: Instances of multiple iterations of the same study were omitted to maintain clarity and avoid repetition.

The review's comprehensive search strategy encompassed prominent academic databases such as PubMed, IEEE Xplore, and Google Scholar. Strategic keyword combinations, including "e-discovery," "electronic evidence," "medical litigation," "healthcare technology," and "Indian healthcare system," were employed to pinpoint relevant sources.

The selection process underwent a two-stage screening. Initial screening involved evaluating titles and abstracts to gauge relevance based on the predefined criteria. Full-text articles were subsequently obtained for sources that met the preliminary screening requirements. These full-text articles were subjected to a thorough review to ascertain their alignment with the inclusion criteria and their potential contribution to the narrative review. The data extraction process involved meticulous retrieval of pertinent information from the selected sources. Key findings, challenges, initiatives, legal framework gaps, and other relevant insights were systematically organized. This extracted data was then synthesized thematically to

identify recurring trends and challenges specific to the Indian healthcare context.

As with any research endeavor, the review acknowledges certain limitations. The potential for bias due to source selection and the absence of quantitative analysis were noted. Moreover, the scope was confined to sources within a specified timeframe and published in English. The dynamic nature of healthcare technology also poses the challenge of rapidly evolving information.

CHALLENGES WITH VARIED FORMATS

In the realm of legal proceedings, the transition from paper medical records to electronic medical records (EMRs) has given rise to various intricate challenges. Within the context of an Indian legal research paper, it is essential to explore how these challenges manifest and affect the production of EMRs for lawyers⁴.

One significant predicament revolves around the presence of multiple EMR systems within a healthcare facility, each catering to different departments or specific purposes. The lack of standardization among these systems results in diverse data formats and variations in information presentation⁵. Consequently, healthcare providers must grapple with the question of how to compile an EMR that effectively consolidates data from these disparate systems.

Another issue pertains to the inclusion of metadata in the produced EMRs. For instance, EMR systems frequently display warnings regarding potential negative interactions between prescribed medications^{6,7}. Determining the extent to which such warnings should be incorporated in the EMR poses a considerable challenge.

Furthermore, healthcare providers must address the dynamic nature of EMRs while adhering to the discovery rules prohibiting evidence tampering. As new patient information is continually added, EMRs undergo constant changes. Healthcare providers must find ways to navigate this evolving landscape without running afoul of the rules governing the handling of evidence. The functionality of copy and paste in EMRs presents another noteworthy concern. Healthcare providers must establish robust protocols to mitigate the risks associated with inaccurate or incomplete information resulting from the indiscriminate use of this feature.

Resolving these challenges within the Indian legal framework requires careful consideration. EMRs lack standardization not only in terms of the software

systems used but also in relation to the specialization of medical professionals. In India, there exists a plethora of EMR programs, each designed to cater to specific medical care providers. Government institutions and those within the Armed Forces may even employ their own bespoke systems based on Linux. Moreover, different departments and personnel within healthcare systems may utilize distinct versions of the same EMR system, tailored to their respective fields, or even entirely separate systems⁸. This results in discrepancies in the display of medical information for the same patient, depending on the interface used by nurses, doctors, or other healthcare professionals. Additionally, the persistence of mixed paper and electronic record systems necessitates the consolidation of data from various sources to construct a comprehensive EMR.

METADATA RELATED CONCERNS

In the context of legal proceedings in India, metadata assumes a pivotal role as it encompasses information concerning the characteristics, origins, usage, and validity of electronic evidence. From a legal perspective, it is important to recognize that metadata is not a static entity and can undergo modifications over time as a result of the software and operating system functions, even without human intervention. In this regard, there are two primary categories of metadata: application metadata and system metadata.

Application metadata is typically embedded within the file it pertains to and remains associated with the file throughout the process of copying or transferring. An illustrative example of application metadata can be observed in Microsoft Word documents. By default, Word documents contain metadata such as the name of the author, computer name, last save time, creation date, and the name of the creator's company. This information is automatically generated and updated in real time within the document.

Conversely, system metadata is stored in a separate file within the computer system and serves the purpose of tracking the location of files and providing details about each file. It encompasses information such as the file's name, size, creation date, modification history, and usage. As the data within a computer system undergoes changes, the system metadata dynamically adapts accordingly to reflect the current state of the file.

Nevertheless, it is crucial to acknowledge the practical limitations associated with producing metadata, especially in the context of traditional

paper-based formats for electronic medical records. Not all forms of metadata are easily translatable into a printed format, and attempting to reproduce the entire set of metadata for an entire electronic medical record in paper form would be impractical and pose challenges for legal professionals to comprehend. Therefore, in such situations, it is advisable to generate and present only the relevant metadata that can be effectively reproduced on paper. This may encompass elements such as audit trails, pop-ups, preliminary questions, and checkboxes that constitute a finalized doctor's note, which are amenable to reproduction in a printed format.

1. Ensuring Authenticity and Accuracy of Electronic Medical Records

The production of an audit trail, which meticulously records every alteration or addition made to an electronic medical record (EMR), can be requested, and supplied by healthcare providers^{9,10}. This feature assumes particular significance in verifying the authenticity and accuracy of the EMR. Unlike traditional paper records, where the potential for modifications or lack of veracity exists, audit trails provide a comprehensive chronicle of changes. They encompass pertinent details such as the terminal employed to access the record, the precise date and time of each modification, and the identity of the author. However, challenges emerge concerning the accuracy and reliability of audit trails. For instance, discrepancies may arise when the timestamp in the record inaccurately reflects the actual time of data entry¹¹. Moreover, situations where multiple healthcare professionals contribute to a patient's care may result in an audit trail that does not distinctly attribute specific actions to individual personnel. Discrepancies in terminology and content across diverse electronic medical record software systems can engender confusion and raise doubts regarding the completeness of the data provided.

2. Balancing Clinical Alerts and Alert Fatigue in Electronic Medical Records

Many electronic medical record systems incorporate alert and reminder pop-up features, which serve to caution physicians about potential medication interactions or adverse reactions that a patient may experience¹². However, physicians often perceive these warnings as excessively conservative, as they generate a significant number of "false-positive alerts" that fail to consider the patient's comprehensive medical context. Consequently, physicians may become desensitized to these alerts, a phenomenon known as "alert fatigue," whereby an overwhelming number of notifications cause

both significant and trivial warnings to be disregarded¹³. Conversely, other manufacturers opt to include additional alerts to assuage liability concerns and shift the burden of responsibility onto physicians who may overlook pertinent warnings. In the event of a patient experiencing complications due to a drug-drug interaction, metadata demonstrating that the EMR program issued an alert regarding the potential adverse reaction can serve as valuable evidentiary support.

3. Metadata Considerations for Documenting Patient Visits

Metadata can also be found within doctors' notes, often structured according to the SOAP (Subjective, Objective, Assessment, Plan) format, encompassing subjective and objective descriptions of the patient, an assessment of their condition, and a treatment plan. Various electronic medical record systems employ distinct methods for documenting these notes, including dictation, typing, or utilizing a series of screens comprising questions and checkboxes to capture relevant information. The question arises as to the appropriate extent of production by healthcare providers, specifically whether the finalized doctor's note, the answers to the questions and checkboxes, or both should be furnished. This issue remains unresolved and lacks standardized practices within the field¹⁴.

MANIPULATION OF EVIDENCE

The use of electronic medical records (EMRs) raises significant concerns regarding their authentication and preservation in legal contexts. Adhering to the Indian Evidence Act¹⁵, EMRs may be admitted as exceptions to the hearsay rule if they are generated as part of routine business activities and are regularly created. Additionally, authentication of EMRs is required before their admission as evidence, necessitating the producer to demonstrate the consistency between the retrieved record and the original one placed in the file¹⁶. Authentication can be achieved through the identification of distinctive characteristics or the testimony of expert witnesses who can compare the record with authenticated ones¹⁷.

EMRs, being dynamic in nature, continually change as new information is recorded. However, tampering or altering such records can result in sanctions under the CrPC. Courts have the authority to issue legal holds, ensuring the preservation of relevant data for ongoing or anticipated litigation. In cases where data is improperly destroyed, claims of spoliation arise, which refers to the intentional destruction, alteration, or concealment of

evidence¹⁸. In such instances, healthcare providers bear the burden of proving to the court that the loss of data was in good faith¹⁹. Failure to demonstrate good faith may lead to court sanctions or the obligation to reconstruct the data, incurring significant costs.

Transitioning to EMRs prompts healthcare providers to digitize and dispose of paper records, but this practice poses challenges. Illegible scanned images may lead to spoliation claims, as the originals could have been more readable. Furthermore, in anticipation of litigation, preserving potential evidence is essential. With evolving EMRs and real-time data changes, authentication, and spoliation prevention are critical concerns for medical providers²⁰. To address the authentication aspect, healthcare providers must utilize reliable methods to verify the integrity of EMRs. This can involve identifying distinctive characteristics within the records, such as metadata, which can serve as evidence of their legitimacy²¹. Additionally, expert witnesses can play a pivotal role in validating the authenticity of EMRs by comparing them with previously confirmed legitimate records²².

COPYING AND PASTING CHALLENGES IN EMRS: IMPLICATIONS FOR DISCOVERY

The utilization of the copy-and-paste function in electronic medical records (EMRs) presents significant challenges within the realm of discovery. Computers equipped with EMRs allow healthcare professionals to effortlessly duplicate and transfer information from one part of the record to another²³. While the act of copying medical records existed prior to the advent of EMRs, the process has become notably more efficient and rapid with the aid of computers. This practice, however, introduces complexities that affect the comprehensibility of the record and may result in the inclusion of redundant information²⁴. Research has identified copying and pasting as a prominent source of errors in EMR documentation, particularly when medical staff neglect to carefully proofread the copied text to ensure its continued accuracy²⁵.

From a legal standpoint, the act of copying and pasting complicates the determination of the original author responsible for a specific segment of the record. This raises uncertainties surrounding the identification of liable doctors and the necessity of their depositions. Questions arise as to whether doctors who employ the original text share liability with the author, and whether every doctor utilizing an incorrect portion of the record has committed an error²⁶. The accuracy and currency of copied text in electronic medical records raise uncertainties for subsequent doctors, prompting questions about

their responsibility to independently verify the information. These considerations also create challenges in determining which doctors should be deposed due to these uncertainties.

CONCLUSION

The implementation of an electronic medical record (EMR) export format within the context of the discovery process offers significant benefits. It provides healthcare providers with control over access, enabling the selective transmission of specific patient data in response to subpoenas or valid discovery requests. This format facilitates data transfer and physical storage through mediums such as USB flash drives, CDs, or DVDs. Legal practitioners benefit from accessing records through a digital interface, overcoming formatting challenges associated with printed versions of EMRs.

By utilizing the export function, legal professionals can access metadata information that may be difficult to obtain from paper printouts. It also helps mitigate the risk of intentional or accidental destruction of evidence by providing an alternative method for generating static backups of patient data, thus serving as an additional safeguard.

Nevertheless, there are drawbacks to this approach. Implementation may be intricate, costly, and time-consuming compared to remote login methods. Establishing a functional standard applicable across different EMR systems is a challenge, which may require further governmental action. Additionally, the export format is limited to generating static files and does not support real-time changes like the remote login method.

To address these concerns, remote electronic access or an interoperable export format can be employed during the discovery process to avoid the need for converting EMRs into tangible paper form. It is crucial to prioritize security, restrict access limited to viewing only, and the safeguard patient confidentiality when legal practitioners access records electronically. The electronic format must also allow the producing party to redact irrelevant content within the records, with a provision for appeals if pertinent material is not produced. Consequently, as electronic medical records represent the future of the healthcare industry, the legal community needs to establish novel standards that align with the digitally oriented realm we inhabit.

ACKNOWLEDGEMENTS

None

CONFLICTS OF INTEREST

The author declared no conflicts of interest.

ETHICAL ISSUES

None

SOURCES OF SUPPORT

This research did not receive any specific grant from funding agencies in the public, commercial, or not for-profit sectors.

AUTHOR CONTRIBUTIONS

JSC: Conceptualization, analysis, data curation, writing – original draft.

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