KARYA KESEHATAN SIWALIMA
Open Access Full Text Article

Original Article

# An Overview of Electronic Medical Record Completeness in the Management of Fracture Patients

Arjuna Ginting, Jey Boris, Angelia Pasaribu

*STIKES Santa Elizabeth Medan, City of Medan, North Sumatra Province, Indonesia*

## Abstract

Medical records are comprehensive documents that provide detailed information throughout a patient's hospitalization. The quality of a medical record is determined by its accuracy, completeness, validity, and timeliness. This study aimed to evaluate the completeness of electronic medical records for fracture patients at Santa Elisabeth Hospital, Medan. Samples were selected using simple random sampling and Slovin's formula. Data analysis focused on patient identity sheets, anamnesis, informed consent forms, and medical resumes. The review of medical record completeness from January to December 2024 revealed 100% completeness for patient identity sheets, 90.8% for anamnesis, and 98.7% for medical resumes. In contrast, informed consent forms had a notably low completeness rate of only 19.7%, particularly in sections requiring patient or family signatures and administrative authorization. These findings highlight the need for targeted improvements, especially in completing informed consent forms, to meet the standards for optimal medical record quality.

Keywords: electronic medical records; completeness; fracture patients; medical record quality

**Vol 4(2),49-59**

https://doi.org/10.54639/kks.v4i2.1652

## Article Information

Submitted: 19-07-2025;
Revised: 05-08-2025;
Accepted: 14-08-2025;
Published: 16-08-2025;

**Corresponding Author:**
Angelia Pasaribu
STIKES Santa Elizabeth Medan, City of Medan, North Sumatra Province, Indonesia
Email: enjelyah22@gmail.com

**Citation Information**

Ginting, A., Boris, J., Pasaribu, A. (2025). An Overview of Electronic Medical Record Completeness in the Management of Fracture Patients. Karya Kesehatan Siwalima, 4(2), 49-59. https://doi.org/10.54639/kks.v4i2.1652



E-ISSN: 2828-8181
P-ISSN: 2828-8408

**Publisher**
Lembaga Penerbitan Fakultas Kesehatan, Universitas Kristen Indonesia Maluku
https://ojs.ukim.ac.id/index.php/KKS/index

## Introduction

Hospitals and other healthcare service facilities are obligated to continuously improve the quality of care by leveraging technological advancements to maintain competitiveness in an evolving healthcare landscape. One such advancement is the implementation of Electronic Medical Record (EMR) systems, which are increasingly being adopted globally, including in Indonesia, as a complement to conventional paper-based documentation. In Indonesia, EMR implementation is regulated by the Ministry of Health and has shown promising prospects for nationwide integration (Lufianti et al., 2022).

According to the Ministry of Health Regulation No. 24 of 2022, EMR is defined as a medical record created electronically using computer systems to organize healthcare documentation. This includes patient identity, examination results, treatments, medical procedures, and other services provided. A high-quality medical record must be accurate, complete, valid, and timely to ensure effective patient care and meet legal and administrative requirements (Kementerian Kesehatan, 2022).

Completeness of medical record documentation plays a critical role in ensuring continuity of care. Missing or incomplete information can hinder healthcare providers in delivering appropriate treatment, complicate medical evaluations, and reduce the legal reliability of records when used as evidence in court (Agustina, 2022). Inadequate documentation also undermines hospital planning and service evaluation, impedes communication between healthcare providers, and may lead to legal consequences given that medical records are legally recognized documents (Demsash et al., 2023).

Previous studies have identified varying levels of EMR completeness across healthcare settings. For example, one study reported the highest completeness rates in patient names and gender (98%) and the lowest in date and place of birth (94.2%). While informed consent forms were nearly complete (99%), anesthetic and sedation notes were less complete (88.4%), with an overall important report completeness of 81% (Suaryanti et al., 2022). Similarly, a review at Tangerang Regional Hospital revealed that 42.6% of medical resumes were incomplete,

leading to inaccuracies in diagnostic coding for fractures and injuries (Rahayu & Temesvari, 2024). The most complete authentication element was doctor and nurse signatures (42%), whereas the least complete was the documentation of doctor names and professional titles (31%), alongside issues such as inappropriate abbreviations and inadequate error correction (Ritonga et al., 2023).

Studies on specific patient populations have also highlighted EMR gaps. For instance, missing data related to age, gender, and treatment rationale in osteoporosis patients demonstrate the limitations of EMR as a research source (Livieri et al., 2025). At Bhayangkara Hospital, low completeness was observed in authentication components, with doctor signatures being the most complete (42%) and professional titles the least complete (31%) (Giyatno & Rizkika, 2020). Similarly, in Panti Waluya Hospital, Malang, operation reports were classified as complete (14 records), fairly complete (50), and incomplete (18). Accurate coding for fracture cases was present in only 17 records, and overall data completeness for patient recruitment was just 35%, with higher completeness in demographic data compared to comorbidity and medication information (Köpcke et al., 2013).

Despite the growing body of literature on EMR completeness, research specifically focusing on fracture patients in Indonesia remains limited. This gap is significant given the high prevalence of fractures and the critical role of accurate medical documentation in ensuring appropriate treatment and continuity of care. In particular, little is known about the completeness of EMR in private hospitals within the Indonesian context, where variations in resources, training, and adherence to documentation standards may influence record quality.

Therefore, this study aims to assess the completeness of electronic medical records for fracture patients at Santa Elisabeth Hospital, Medan. The findings are expected to inform targeted interventions—such as staff training, process evaluation, and quality improvement programs—to enhance documentation practices, thereby improving patient safety, service delivery, and legal compliance in healthcare settings.

## Method

### Study Design

This study employed a descriptive retrospective design, defined as a research approach that objectively describes a condition by reviewing past events or existing records (Rotondo et al., 2025). This design was selected to obtain valid data aligned with the characteristics of the research variables and objectives.

### Population and Sampling

The study population comprised all electronic medical records of fracture patients treated at Santa Elisabeth Hospital, Medan, totaling 333 records. The sample was selected using a simple random sampling technique, with the sample size determined using Slovin's formula at a 10% margin of error, resulting in 76 records.

### Data Collection

Data were collected using a checklist form developed in accordance with the national standards for medical record completeness. The checklist evaluated four main components: patient identification (15 items), anamnesis (12 items), informed consent (4 items), and medical resume (4 items). Each item was scored as 1 (complete) or 0 (incomplete). Records were then categorized as "complete" or "incomplete" based on total scores.

### Validity and Reliability

The checklist instrument underwent expert review by medical record professionals to ensure content validity. Since the study utilized secondary data, no quantitative validity or reliability tests were performed.

### Study Setting and Period

The study was conducted at the Medical Record Unit of Santa Elisabeth Hospital, located at Jl. H. Misbah No. 7, Medan, North Sumatra, Indonesia. Data collection was carried out between March and April 2025.

### Data Analysis

Univariate descriptive statistical analysis was used to determine the percentage of completeness for each component of the medical record. Results are presented in tables showing frequencies and percentages.

**Ethical Considerations**

Ethical approval was obtained from the Research Ethics Committee of the Santa Elisabeth School of Health Sciences, Medan. Formal permission to access medical records was secured from the hospital administration. The principles of beneficence and confidentiality were upheld by ensuring that no patient identifiers were disclosed, and all data were used solely for academic purposes.

## Results

**Table 1**
Completeness of Electronic Medical Record Components for Fracture Patients at Santa Elisabeth Hospital, Medan, 2025

| Record Component | Category | Frequency (*f*) | Percentage (%) |
|---|---|---|---|
| Patient Identity | Complete | 76 | 100% |
| | Incomplete | 0 | 0% |
| Anamnesis | Complete | 69 | 90,79% |
| | Incomplete | 7 | 9.21% |
| Informed Consent | Complete | 15 | 19,74% |
| | Incomplete | 61 | 80,26% |
| Medical Resume | Complete | 75 | 98,68% |
| | Incomplete | 1 | 1,32% |

Based on the findings, the completeness of electronic medical records (EMRs) for fracture patients at Santa Elisabeth Hospital, Medan, in 2025 varied across components. Patient identity and medical resumes demonstrated excellent completeness at 100% and 98.7%, respectively. Anamnesis was also relatively high at 90.8%, although some gaps remained in the documentation of differential diagnoses. In contrast, informed consent had the lowest completeness rate at only 19.7%. This deficiency may be attributed to the heavy workload of medical staff, limited understanding of legal requirements, and insufficient training.

These results underscore the need for targeted improvements in legal and administrative documentation, particularly through enhanced staff training and regular evaluations of documentation practices.

## Discussion

This study aimed to assess the completeness of electronic medical records (EMRs) for fracture patients at Santa Elisabeth Hospital, Medan. The findings revealed varying levels of completeness across four documentation components: patient identity, anamnesis, informed consent, and medical resumes.

The notably low completeness rate of informed consent appears to be influenced by several factors related to human resources and service management. According to Bai et al. (2025), common causes of incomplete medical record documentation—particularly informed consent—include negligence and a lack of awareness among healthcare personnel, especially physicians, in thoroughly completing medical forms. This tendency is often linked to reliance on verbal communication of clinical information without ensuring that it is supported by written documentation, which is essential for legal and administrative purposes.

In addition, the demanding schedules and high workload of medical staff may lead to the de-prioritization of administrative responsibilities, including accurate and complete record-keeping. Under operational pressure, healthcare professionals often focus on clinical interventions while overlooking documentation procedures. Furthermore, insufficient understanding and limited training regarding the legal implications of medical records, particularly informed consent, contribute to suboptimal compliance. Without adequate awareness of legal obligations and patient rights, the process of obtaining and recording informed consent is sometimes treated merely as a formality rather than a critical legal safeguard (Michael et al., 2025).

Other contributing factors include the absence of witnesses or family members during the consent process, as well as a lack of coordination between doctors and nurses in providing patient education before medical procedures (Lai et al., 2025).

The completeness rate observed in this study is significantly lower compared to the findings of Maulana & Herfiyanti (2021) at RSUD Bayu Asih Purwakarta, which reported a 52.5% completeness rate for surgical informed consent. This suggests that the level of completeness at Santa Elisabeth

Hospital, Medan, falls far below the minimum standard and points to systemic issues in medical consent documentation processes.

Furthermore, Arimbi et al. (2021) emphasizes that informed consent must contain two essential components: (1) information on consent or refusal of the procedure and (2) authentication through the signatures of the doctor, patient, and witness. The absence or incompleteness of any of these elements can render the form legally invalid. Findings from the present study indicate that many of these elements are frequently left incomplete, reflecting a substantial gap between policy requirements and field implementation.

**Implications for Patient Safety and Legal Compliance**

The incompleteness of informed consent has serious consequences, including:

1. Patient Safety – Inadequate explanations before medical procedures may result in patient misunderstanding, reduced trust, or even refusal to continue with treatment midway.
2. Legal Protection for Medical Personnel and Hospitals – The informed consent form serves as legal evidence that the patient has been informed and has agreed to the procedure. An incomplete form creates a legal vulnerability that may be exploited in cases of complications or dissatisfaction with care.
3. Hospital Accreditation – The completeness of medical records, including informed consent, is a key quality indicator in healthcare facility accreditation. Systemic deficiencies can jeopardize accreditation status and negatively impact the hospital's quality image.

**Theoretical Implications**

From a scholarly perspective, this study contributes to the growing body of literature on EMR quality assessment in developing country contexts, particularly in specialized patient populations such as fracture cases. It highlights the importance of integrating administrative, legal, and clinical considerations into EMR completeness frameworks, thereby reinforcing the need for multi-dimensional evaluation tools in health information management research.

### Practical Implications

For healthcare administrators, the results provide actionable insights into how workflow, staff awareness, and interprofessional coordination affect documentation quality. The findings emphasize that high clinical performance does not necessarily translate into adequate administrative compliance, underscoring the need for balanced attention to both domains.

## Conclusion

This study assessed the completeness of electronic medical records (EMRs) for fracture patients at Santa Elisabeth Hospital, Medan, focusing on four key documentation components: patient identity, anamnesis, informed consent, and medical resume. The findings indicate that completeness is generally high for patient identity (100%), anamnesis (90.8%), and medical resume (98.7%). However, the informed consent component demonstrated a substantial gap, with only 19.7% completeness, reflecting systemic challenges in documentation practices.

The use of a retrospective descriptive design and checklist-based document analysis proved effective in identifying these gaps, offering a clear framework for evaluating EMR quality. This methodological approach allowed for the identification of specific weaknesses—particularly in legal and administrative documentation—thereby guiding targeted quality improvement strategies.

## Acknowledgements

The author extends sincere gratitude to the leadership and staff of the Medical Records Department at Santa Elisabeth Hospital, Medan, for granting access to the medical record data and for their valuable support throughout the study. Appreciation is also expressed to all individuals and institutions who contributed, directly or indirectly, to the successful completion of this research.

## Conflict of Interests Statement

The author declares that there are no conflicts of interest related to the publication of this article.

## Funding Statement

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

## References

Agustina, E. A. (2022). Faktor Penyebab Ketidaklengkapan Pengisian Dokumen Rekam Medis Rawat Inap di Rumah Sakit: Literature Review. *Jurnal Manajemen Informasi Kesehatan Indonesia*, *10*(1), 104. https://doi.org/10.33560/jmiki.v10i1.403

Arimbi, A. D., Muflihatin, I., & Muna, N. (2021). Analisis Kuantitatif Kelengkapan Pengisian Formulir Informed Consent Rumkital Dr. Ramelan Surabaya. *J-REMI: Jurnal Rekam Medik Dan Informasi Kesehatan*, *2*(2), 221–230. https://doi.org/10.25047/j-remi.v2i2.2009

Bai, E., Luo, X., Zhang, Z., Adelgais, K., Ali, H., Finkelstein, J., & Kutzin, J. (2025). Assessment and Integration of Large Language Models for Automated Electronic Health Record Documentation in Emergency Medical Services. *Journal of Medical Systems*, *49*(1), 65. https://doi.org/10.1007/s10916-025-02197-w

Demsash, A. W., Kassie, S. Y., Dubale, A. T., Chereka, A. A., Ngusie, H. S., Hunde, M. K., Emanu, M. D., Shibabaw, A. A., & Walle, A. D. (2023). Health professionals' routine practice documentation and its associated factors in a resource-limited setting: a cross-sectional study. *BMJ Health & Care Informatics*, *30*(1). https://doi.org/10.1136/bmjhci-2022-100699

Kementerian Kesehatan. (2022). *Peraturan Menteri Kesehatan Nomor 24 Tahun 2022 tentang Rekam Medis*. https://peraturan.bpk.go.id/Details/245544/permenkes-no-24-tahun-2022

Köpcke, F., Trinczek, B., Majeed, R. W., Schreiweis, B., Wenk, J., Leusch, T., Ganslandt, T., Ohmann, C., Bergh, B., Röhrig, R., Dugas, M., & Prokosch, H.-U. (2013). Evaluation of data completeness in the electronic health record for the purpose of patient recruitment into clinical trials: a retrospective analysis of element presence. *BMC Medical Informatics and Decision Making*, *13*(1), 37. https://doi.org/10.1186/1472-6947-13-37

Lai, Y. K., Ye, J. F., Yan, C., Zhang, L., Zhao, X., & Liu, M. T. C. (2025). From Online to Offline: How Different Sources of Online Health Information Seeking Affect Patient-Centered Communication in Chinese Older Adults? The Roles of Patient Activation and Patient–Provider Discussion of Online Health Information. *Health Communication*, *40*(9), 1684–1695. https://doi.org/10.1080/10410236.202

4.2419194

Livieri, G., Mangina, E., Protopapadakis, E. D., & Panayiotou, A. G. (2025). The gaps and challenges in digital health technology use as perceived by patients: a scoping review and narrative meta-synthesis. *Frontiers in Digital Health*, *Volume 7-*. https://doi.org/10.3389/fdgth.2025.1474956

Lufianti, S. A., Wijayanti, R. A., Mudiono, D. R. P., & Muflihatin, I. (2022). Analisis Faktor Penyebab Ketidaklengkapan Resume Medis Rawat Inap di Puskesmas Cermee Bondowoso. *Jurnal Rekam Medik & Manajemen Informasi Kesehatan*, *1*(2), 80–86. https://doi.org/10.47134/rmik.v1i2.21

Maulana, D. A., & Herfiyanti, L. (2021). Analisis Kelengkapan Rekam Medis Rawat Inap Di RSUD Bayu Asih Purwakarta. *Cerdika: Jurnal Ilmiah Indonesia*, *1*(8), 933–938. https://doi.org/10.36418/cerdika.xxx

Michael, S., Kyejo, W., Ismail, A., Samji, S., Aghan, E., Mbekenga, C., & Ali, A. (2025). Patients' perceptions and understanding of preoperative informed consent: A qualitative thematic analysis from Tanzania. *SAGE Open Medicine*, *13*, 20503121251331120.

Rahayu, A. R., & Temesvari, N. A. (2024). Hubungan Kelengkapan Resume Medis Dengan Ketepatan Kode Diagnosis Fracture dan Injury Di RSUD Kota Tangerang. *JOURNAL OF SCIENCE AND SOCIAL RESEARCH*, *7*(4), 2025–2031. https://doi.org/10.54314/jssr.v7i4.2345

Ritonga, Z. A., Hasibuan, A. S., & Putri, T. A. (2023). Analisis Kualitatif Pengisian Rekam Medis Rawat Inap Di Rumah Sakit Umum Daerah Kabupaten Aceh Tamiang Tahun 2022. *Jurnal Ilmiah Perekam Dan Informasi Kesehatan Imelda (JIPIKI)*, *8*(1), 112–123. https://doi.org/10.52943/jipiki.v8i1.1228

Rotondo, J., VanSteelandt, A., Kouyoumdjian, F., Bowes, M. J., Kakkar, T., Jones, G., Abele, B., Murray, R., Schleihauf, E., Halverson, J., Leason, J., Huyer, D., Jackson, B., Bozat-Emre, S., Shah, D., & Rees, E. E. (2025). Substance-Related Acute Toxicity Deaths in Canada From 2016 to 2017: Protocol for a Retrospective Chart Review Study of Coroner and Medical Examiner Files. *JMIR Public Health Surveill*, *11*, e49981. https://doi.org/10.2196/49981

Suaryanti, N. M. A., Wirajaya, M. K. M., & Sudiari, M. (2022). Analisis Kelengkapan Rekam Medis Pasien Rawat Inap Fraktur Tulang Anggota Gerak di Rumah Sakit Bhayangkara

Denpasar. *Jurnal Kesehatan Vokasional*, *7*(2), 70–78. https://doi.org/10.22146/jkesvo.67626