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Analysis of completeness factors for filling inpatient discharge summaries H. Hanafie regional hospital Muara Bungo Jambi 2024

Veita Astrianda[1], Wahyu Ratri Sukmaningsih[2]

[1,2]Politeknik Indonusa Surakarta, Indonesia

ARTICLE INFO

Article History:

Received May 10, 2025
Revised May 19, 2025
Accepted May 28, 2025

Keywords:

Completeness
Discharge Summaries
Factor 5M
Hospital
Medical Record

ABSTRACT

Although the discharge summary is essential for ensuring continuity of patient care, supporting clinical decision-making, and enabling administrative processes such as BPJS insurance claims, RSUD H. Hanafie Muara Bungo continues to face challenges in achieving complete and standardized medical documentation. This study analyzes the factors influencing the completeness of inpatient medical resumes at RSUD H. Hanafie using the 5M framework: Man, Method, Machine, Material, and Money. A qualitative descriptive approach was employed, with data collected through document review, observation, and interviews with Responsible Doctors (DPJP) and the Head of the Medical Records Installation. A total of 100 medical resumes were selected using simple random sampling, based on the Slovin formula with a 10% margin of error. Data were analyzed through data reduction, presentation, conclusion drawing, and validation using triangulation. Results showed that the patient identification component achieved 100% completeness, while important reporting, authentication, and recording reached 98%, 95%, and 77%, respectively. Key influencing factors included limited routine training and discipline (Man), absence of SOPs and weak monitoring (Method), suboptimal form design (Material), insufficient devices and system disruptions (Machine), and budget constraints (Money). To address these issues, a comprehensive strategy involving health worker collaboration, system support, and strong management commitment is essential to ensure that the clinical, legal, and administrative functions of medical resumes are fulfilled.

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Coressponding Author:

Veita Astrianda,
Politeknik Indonesia,
Laweyan, Surakarta, Jawa Tengah, 57149, Indonesia
Email: 24.veita.astrianda@poltekindonusa.ac.id

INTRODUCTION

Discharge summaries or medical resumes is an important medical document that summarizes a patient's clinical course, including admission diagnosis, treatment interventions, test results, and discharge instructions. This summary not only serves as a medical record, legal but also as a communication tool between hospital-based health care providers and the community, ensuring

continuity of care after discharge (Mathar & Igayanti, 2021). In Indonesia, a medical discharge summary, often referred to as a medical resume, is required to contain detailed patient information, reasons for admission, diagnosis, treatment, results, and follow-up instructions, in accordance with the regulations of the Ministry of Health (Kemenkes RI, 2020; Trianto & Rohaeni, 2021).

The completeness of a patient's medical resume is an important indicator of the quality of patient health services. Incomplete documentation can hinder clinical decision-making, delay administrative processes such as insurance claims, and increase patient risk due to information gaps (Halimatusaadah & Hidayati, 2022). Research conducted by Wirajaya (2019) confirmed that the completeness of medical records is often influenced by a combination of human resources, methods, materials, equipment, and financial constraints, which are collectively known as the 5M factors (Wirajaya, 2019).

Despite national policies advocating for comprehensive and standardized medical records, many hospitals in Indonesia still report low compliance with documentation standards. For example, studies have shown that even with electronic medical record (EMR) systems in place, factors such as high physician workload, limited training, inadequate device availability, and weak enforcement mechanisms contribute significantly to documentation deficiencies (Susanti & Amalia, 2021; Wibowo & Kurniawati, 2020). These gaps are even more pronounced in hospitals in rural areas or areas with limited resources and inconsistent infrastructure (F. Siregar & Wardhani, 2020).

H. Hanafie Regional General Hospital, Muara Bungo, Jambi, began implementing an electronic medical record system in February 2024. However, preliminary studies showed persistent problems in the completeness of medical records, especially in inpatient records. Initial audits showed that although patient identification fields were complete due to integration with the hospital registration system, critical reporting components such as reason for admission, disease progression, and procedural documentation were often incomplete or undocumented.

In accordance with the Regulation of the Minister of Health of the Republic of Indonesia No. 129/2008, the standard for completeness of medical record documentation in Indonesian hospitals is 100%. However, at H. Hanafie Hospital, an internal review showed that the level of compliance was still below the required threshold. This problem is further complicated by systemic challenges such as the lack of EMR devices, overlapping physician responsibilities, the lack of a specific evaluation framework, and the absence of a mechanism for implementing sanctions.

This study provides a novel contribution by applying the 5M framework—commonly used in manufacturing and service quality management—to assess medical documentation completeness in a rural Indonesian hospital setting. While previous studies have focused on isolated factors, this study integrates human, procedural, infrastructural, material, and financial dimensions in a single holistic analysis. Furthermore, the study offers a practical roadmap tailored to resource-limited hospitals transitioning to EMR systems. Given the gap, this study aims to analyze the factors that influence the completeness of inpatient medical resumes at H. Hanafie Muara Bungo Regional Hospital using the 5M factor: Man, Method, Material, Machine, and Money. This study aims to identify factors that influence and contribute to the completeness of filling out medical resumes based on data to improve the accuracy and completeness of medical resumes in similar hospital environments.

RESEARCH METHOD

This study uses a qualitative descriptive approach to analyze factors that influence the completeness of filling out medical resumes of inpatients at H. Hanafie Muara Bungo Regional Hospital, Jambi. Qualitative methods were chosen to capture the natural situation of documentation practices without manipulation, and to provide detailed insights into how various factors influence the completeness of medical records (Miles & Huberman, 1994; Sugiyono, 2014). Data were collected through document review, in-depth interviews, and direct observation.

This study involved six informants, including five Responsible Doctors for Patients (DPJP) and one Head of the Medical Records Installation, who were selected purposively. From a total population of 3,587 inpatient medical resumes recorded during the study period, the required sample size was calculated using the Slovin formula with a margin of error of 10 percent. The calculation resulted in a sample size of approximately 97.3, which was then rounded up to 100 to ensure a sufficient and manageable dataset for analysis. Simple random sampling was used to select the medical resumes, allowing each record an equal probability of inclusion and minimizing selection bias. The variables used include completeness analysis seen from the components of patient identity review, important reporting, authentication and recording as well as influencing factors categorized into the 5M framework: Man, Method, Machine, Material, and Money.

Data collection instruments included a document analysis checklist, an interview guide based on the 5M indicators, and observation notes. Document analysis followed national hospital standards (Kemenkes RI, 2020). Interviews were audio recorded, transcribed, and coded thematically. Observations were conducted in the inpatient ward and medical record installation room to identify workflow issues, access constraints, and challenges related to EMR.

Data analysis used the interactive model of Miles and Huberman (1994) which includes data reduction, data presentation, and drawing conclusions. To strengthen the validity of the data, source triangulation was used by comparing interview data with document analysis and observation (Creswell & Poth, 2018). Informed Consent was obtained, and approval was given by all participants.

RESULTS AND DISCUSSION

An analysis of 100 inpatient medical resumes was conducted based on four main components: patient identification, critical reporting, authentication, and recording. The results of the patient identification review are presented in Figure 1.

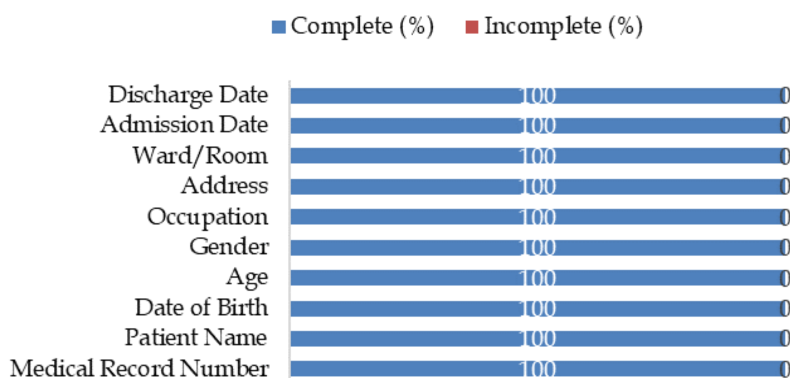

Figure 1. Completeness of patient identification components in discharge summary (n=100)

Figure 1 shows that the completeness of the patient identification component in the inpatient medical summary reached 100%. This finding indicates that all important identification items such as medical record number, patient name, date of birth, and admission/discharge date are documented accurately and consistently. The high completeness of this component can be attributed to the automatic integration of patient demographic data during the hospital registration process, which is supported by the electronic medical record (EMR) system.

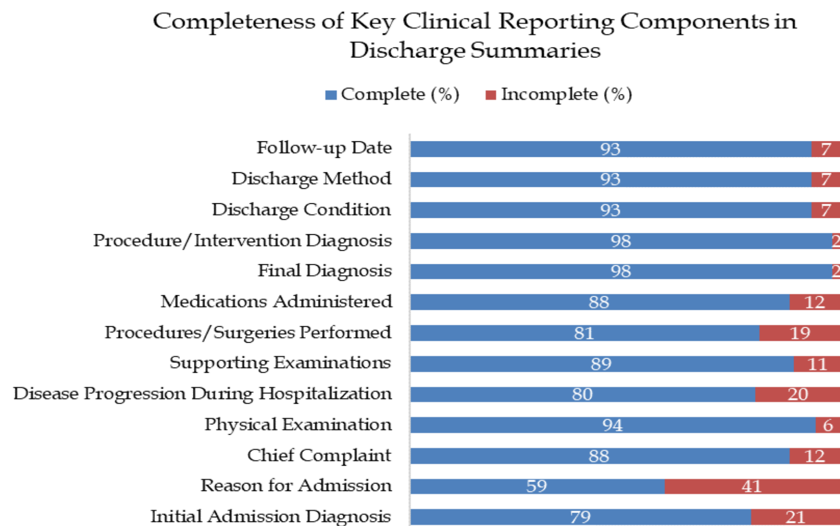

Figure 2. Completeness of key clinical reporting components in discharge summary (n=100)

Figure 2 presents an analysis of the critical reporting components in inpatient medical summaries. The highest levels of completeness were found for the final diagnosis and procedure/treatment diagnosis items, each with a completion rate of 98%. These results suggest that health care providers prioritize documentation of final clinical outcomes, particularly those necessary for claims processing and discharge validation. In contrast, the highest level of incompleteness was found for the "reason for admission" item, with 41% of summaries missing this information. Incomplete documentation in this area may reflect time constraints during the initial patient assessment or a limited understanding of the importance of this item for clinical continuity and case audit.

While this study is qualitative, internal audit reports from the hospital in early 2024 indicated that approximately 12% of BPJS claims were delayed due to incomplete documentation, especially in admission justification and procedural notes. In addition, one case review revealed that missing discharge instructions contributed to delayed outpatient follow-up and potential readmission, underscoring the clinical risk posed by incomplete summaries.

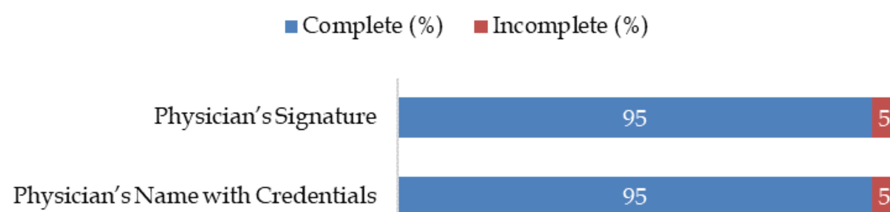

Figure 3. Completeness of authentication components in the repatriation summary (n=100)

Figure 3 illustrates the completeness of the authentication components in the inpatient medical record. Both elements of physician's name with credentials and physician signature were found to be 95% complete. This high percentage reflects a high level of awareness among physicians regarding the legal and professional responsibilities attached to discharge documentation. However, the 5% incomplete entries indicate occasional omissions in routine practice, which may be due to time pressure, documentation fatigue, or lack of active monitoring.

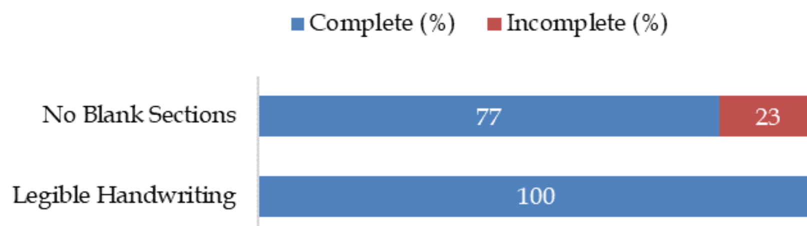

Figure 4. Completeness of recording quality in the return summary

Figure 4 presents an analysis of the quality components of inpatient medical record summaries. The "legibility" indicator achieved 100 percent completeness, indicating that every entry was written clearly and met the minimum legibility standard. By contrast, the "no blank sections" indicator showed a lower completeness rate of 77 percent, with 23 percent of summaries containing at least one unfilled item that was not marked with a dash (-). Although handwriting quality is no longer a primary concern in institutions that use electronic medical records (EMRs), blank sections remain an important marker of documentation completeness.

5M Factors

Factor affecting the completeness of inpatient medical resumes at H. Hanafie Muara Bungo Regional Hospital, Jambi is based on the 5M factors, which include Man, Method, Machine, Material, and Money. These factors allow a holistic evaluation of the human and systemic elements that affect documentation practices.

Man factor plays an important role in the completeness of filling out an electronic medical resume, seen from the aspects of knowledge, training, and discipline. In general, the Responsible Doctor for the Patient (DPJP) shows a good understanding of the importance of a medical resume and is aware that the completeness of filling must reach 100%. Training is not routine and tends to be theoretical, so it is considered less effective. The discipline of medical personnel is also hampered by limited devices, system disruptions, and high workloads. These findings are in line with previous studies showing that gaps in practical training and low institutional support for documentation culture often result in incomplete EMR entries (Andayani et al., 2022). Moreover, the absence of a feedback mechanism to track compliance further weakens accountability among doctors (Hidayat & Sihombing, 2023). High workload and task fragmentation were also found to reduce clinicians' motivation to complete medical documentation, particularly in overstretched hospital environments (Wijayanti & Permana, 2022).

Method factors include the availability of Standard Operating Procedures (SOP) related to filling out electronic medical resumes, monitoring/evaluation, and the application of sanctions. The absence of a specific SOP regarding the procedure for filling out electronic medical resumes is a major weakness observed in this study. The weakness of the monitoring system which is still personal in nature, accompanied by evaluations that are not carried out by management or the service sector, and the lack of implementation of sanctions for medical personnel who do not comply with filling out results in improvement efforts not having a significant impact on the compliance of the Patient's Responsible Doctor (DPJP) in filling out the EMR. This finding is in line with the research of Wulandari and Prasetyo, which states that monitoring without formal evaluation is unable to improve discipline in filling out medical records (Wulandari & Prasetyo, 2020). Similar findings were reported by Rahmah and Astuti, who emphasized that incomplete SOPs and minimal institutional oversight contribute significantly to noncompliance (Rahmah & Astuti, 2020). Furthermore, research by Lestari et al. demonstrated that the lack of punitive mechanisms reduces the urgency among healthcare workers to fulfill documentation standards

(Lestari et al., 2022). In addition, Santoso and Wijaya found that the absence of clearly communicated and enforced SOPs hinders accountability in clinical documentation practices, particularly in high-turnover environments such as public hospitals (Santoso & Wijaya, 2023).

Machine Factor refers to the availability of computer devices which are important components that greatly influence the smoothness of filling out electronic medical resumes by medical personnel. Although hospitals have implemented an electronic medical record (EMR) system, challenges such as limited computer availability and system delays are often reported. Where the doctor in charge of the patient (DPJP) must use the computer alternately with other medical personnel so that there are often queues for use. This problem has an impact on disrupting clinical workflow, hindering real-time data entry, and can lead to delayed or incomplete records. This finding is reinforced by the results of research by Yuliana & Hendrawan (2021), which states that adequate information technology facilities and infrastructure have a significant influence on the completeness and compliance of filling out electronic medical records by health workers.

Material factors relate to the design and structure of the medical resume form itself. Although the appearance of the current electronic medical resume form is considered quite good where each piece of information is neatly structured, there are several components that must be inputted repeatedly because they are not systematic, which is considered time-consuming to fill out. This obstacle can reduce the motivation of doctors to complete the form thoroughly and efficiently. Studies show that good interface design and form structure in an electronic medical record system greatly affect the comfort of medical personnel and compliance in filling out medical data (Setiawan, Rachman, et al., 2021). In their study, Lee and Park found that cluttered and repetitive EMR interfaces negatively influence healthcare professionals' willingness to complete documentation, especially under time pressure (Lee & Park, 2022). Similarly, research by Gunawan and Herlina highlights that design inconsistencies and poor user experience in EMR forms correlate with increased data entry fatigue and reduced documentation accuracy (Gunawan & Herlina, 2023). Additionally, Sharma et al. demonstrated that optimizing digital form design leads to measurable improvements in documentation speed and clinician satisfaction (Sharma et al., 2022).

Money factor is a crucial element in supporting the successful implementation and completeness of filling out electronic medical records. Limited hospital budget support can be a major obstacle in implementing EMR. The limited availability of hardware, unstable internet connections at certain times, and training that is not routinely carried out indicate that the budget allocation for developing human resources and device capacity is still inadequate. Therefore, an increase in funding allocation is an urgent need to achieve the target of optimal completeness of medical documentation. This is in line with the findings of Siregar and Wardhani, who state that sufficient financial support has a significant influence on the effectiveness of implementing health information systems in hospitals, including in maintaining the continuity of quality services and documentation (A. Y. M. Siregar & Wardhani, 2020). Alami et al. emphasized that digital health transformation efforts often fail in resource-limited environments due to a lack of consistent funding and infrastructure (Alami et al., 2021). Rosman et al. also found that unstable internet and low ICT investment levels hinder medical staff from utilizing EMR systems effectively, especially in rural and semi-urban hospitals (Rosman et al., 2023). In addition, Tubaishat reported that inadequate budget planning impacts not only EMR software adoption but also staff readiness, underlining the importance of strategic funding in achieving digital healthcare goals (Tubaishat, 2022).

Synthesis the five 5M factors interact with each other and collectively affect the quality of filling out the medical resume of inpatients. Therefore, to overcome the various challenges that exist, an integrated strategy is needed that includes increasing human resource capacity, enforcing clear procedures, investing in technology, preparing more efficient forms, and providing adequate financial support.

CONCLUSION

Evaluation of the completeness of the medical resume of inpatients at H. Hanafie Muara Bungo Regional Hospital, Jambi, is known from the 4 assessments studied, namely patient identification review, important reporting, authentication and recording, it was found that only the patient identification review achieved 100% completeness, while important reporting, authentication, and recording each had the highest completeness reaching 98%, 95%, and 77%. Meanwhile, the factors that influence the completeness of filling out the medical resume are Man, Method, Material, Machine, and Money. The Man factor includes the level of knowledge of medical personnel which is already good, but has not been balanced with routine training and high discipline in filling out the medical resume. The Method factor includes the lack of a special SOP for filling out the electronic medical resume, the weak monitoring and evaluation system, and the absence of sanctions. The Material factor is related to the design of the form which is relatively good but still difficult because some components need to be filled in repeatedly which should be done systematically. The Machine factor shows the limited number of computer devices and system disruptions that hinder filling efficiency. Meanwhile, the Money factor is related to budget limitations which have an impact on the limited training provided, the number of devices is inadequate, and the development of support systems is not yet optimal.

Practices Recommendation to overcome the problems in filling out the medical resume of inpatients based on the 5M analysis, several mutually supportive improvement steps are recommended. From the Man side, hospitals need to improve the ability and responsibility of medical personnel through routine training and a monitoring and evaluation system. From the Method side, it is important to create and implement clear and integrated standard procedures (SOPs). In the Machine aspect, the electronic medical record (EMR) system needs to ensure that all units have system access and an adequate number of devices. For Material, the medical resume form is good enough, minimizing redundancy or repeated input. Finally, from the Money side, hospitals need to allocate budgets appropriately for training, system updates, and additional medical personnel if needed, and consider incentives to support the quality of documentation.

Given the general nature of the 5M framework and the widespread challenges related to medical documentation across regional hospitals, this study can be replicated in other institutions with similar characteristics. Hospitals undergoing EMR adoption, facing budget limitations, and operating under limited human resource capacity may particularly benefit from adopting this approach. The findings emphasize the urgency for the Ministry of Health and local hospital management to enforce clear SOPs, allocate routine training budgets, and strengthen audit-feedback loops. A policy directive integrating the 5M framework into national EMR quality standards could serve as a model for compliance improvement.

Limitations and Future Research this study is limited by its single-site focus, which may restrict generalizability. Moreover, it does not include quantitative outcomes such as cost delays or clinical incident rates linked to incomplete documentation. Future studies could adopt a mixed methods design to quantify financial and patient safety impacts and explore 5M implementation effectiveness in urban versus rural settings.

ACKNOWLEDGEMENTS

The author would like to thank all parties who have provided support in the implementation of this research. Thanks are conveyed to the management and staff of the H. Hanafie Muara Bungo Jambi Regional General Hospital for the permission and assistance provided during the data collection process, as well as to the Doctors in Charge of Patients (DPJP) and the Head of the Medical Records Installation who have agreed to be respondents in this study. The author also expresses appreciation to the supervising lecturers and colleagues at the Indonusa Surakarta Polytechnic who have provided input and encouragement during the preparation of this article.

Hopefully, the results of this study can provide a positive contribution to improving the quality of medical documentation in hospitals.

This strategy adopts a multi-faceted approach to improving medical record summaries by integrating the roles of healthcare professionals, supportive systems, and management backing, so that hospitals can ensure each patient's medical summary fulfills its clinical, legal, and administrative functions.

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