BRIDGING DOCUMENTATION GAPS IN ELECTRONIC MEDICAL RECORDS: AN ANALYSIS OF INCOMPLETE MEDICAL ASSESSMENTS AND THEIR CONSEQUENCES FOR INA-CBGS REIMBUREMENT

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Abstract

Electronic Medical Records (EMR) are designed to improve service quality, documentation accuracy, and administrative efficiency, including reimbursement through the Indonesian Case-Based Groups (INA-CBGs). However, incomplete medical assessments remain a challenge, potentially leading to service gaps and reduced hospital claims. This qualitative descriptive study was conducted at Dharma Yadnya General Hospital, Denpasar, which has fully implemented EMR since 2024. Data were obtained through in-depth interviews with five informants: two medical record officers, the head of the emergency nursing unit, the head of the inpatient nursing unit, and the head of the medical record department. Data analysis used the 3M framework: Man, Method, and Material. From the Man aspect, heavy workloads of doctors and the lack of administrative support staff often caused delays and incomplete documentation. From the Method aspect, although Standard Operating Procedures (SOPs) and system reminders existed, monitoring relied mainly on manual follow-ups via WhatsApp groups, limiting effectiveness. From the Material aspect, the EMR system was user-friendly and supported by weekly vendor maintenance, but occasional network disruptions and insufficient administrative staff still hampered real-time documentation. Incomplete medical assessments in EMR directly affect INA-CBGs claims, especially when comorbidities, complications, or procedures are not recorded, resulting in under-coding and reduced reimbursement. Strengthening human resources, enforcing SOPs, and improving system support are essential to ensure documentation completeness, service quality, and financial sustainability

Keywords : Electronic Medical Records, completeness, medical assessment, INA-CBGs, hospital claims

Abstrak

Rekam Medis Elektronik (RME) dikembangkan untuk meningkatkan mutu pelayanan, akurasi dokumentasi klinis, serta efisiensi administrasi termasuk klaim melalui Indonesian Case-Based Groups (INA-CBGs). Namun, ketidaklengkapan asesmen medis masih menjadi masalah yang berpotensi menurunkan mutu pelayanan dan nilai klaim rumah sakit. Penelitian ini merupakan studi kualitatif deskriptif yang dilakukan di RSU Dharma Yadnya Denpasar, yang telah menerapkan RME secara menyeluruh sejak tahun 2024. Data diperoleh melalui wawancara mendalam dengan lima informan, yaitu dua petugas rekam medis, kepala unit perawat IGD, kepala unit perawat rawat inap, dan kepala instalasi rekam medis. Analisis data dilakukan dengan pendekatan 3M: Man, Method, dan Material. Hasil penelitian menunjukkan bahwa pada aspek Man, beban kerja dokter yang tinggi dan keterbatasan

tenaga admin menyebabkan keterlambatan serta ketidaklengkapan pengisian asesmen. Pada aspek Method, meskipun tersedia SOP dan reminder sistem, pengawasan masih mengandalkan tindak lanjut manual melalui grup WhatsApp sehingga efektivitasnya kurang optimal. Pada aspek Material, sistem RME dinilai user-friendly dan didukung pemeliharaan vendor mingguan, namun gangguan jaringan dan keterbatasan SDM non-medis tetap menghambat pengisian real time. Disimpulkan bahwa ketidaklengkapan asesmen medis dalam RME berdampak langsung pada klaim INA-CBGs, terutama bila diagnosis komorbid, komplikasi, atau prosedur tidak terdokumentasi, sehingga menimbulkan under-coding dan penurunan klaim. Upaya perbaikan perlu difokuskan pada penambahan SDM, penegakan SOP, dan optimalisasi dukungan sistem.

Kata kunci: Rekam Medis Elektronik, kelengkapan, asesmen medis, INA-CBGs, klaim rumah sakit

1. INTRODUCTION

Electronic Medical Records (EMR) have become an essential innovation in health information management, designed to improve the quality of healthcare services, the accuracy of documentation, and the efficiency of administrative processes (Huffman, 2016). In Indonesia, the adoption of EMR has been further emphasized by the implementation of the Indonesian Case-Based Groups (INA-CBGs) reimbursement system, which requires accurate and complete clinical documentation to ensure appropriate hospital claims (WHO, 2020). However, in practice, incomplete medical assessment documentation is still frequently found, especially in hospitals that have recently transitioned from paper-based to electronic records (Rahmawati, 2021). Incomplete assessments not only affect the continuity of patient care but also have significant implications for hospital financing due to potential under-coding in the INA-CBGs system.

This study aims to analyze the causes of incomplete medical assessment documentation in EMR at Dharma Yadnya General Hospital, Denpasar, which has fully implemented EMR since 2024. The analysis focuses on three main aspects using the 3M framework: Man (human resources and workload), Method (standard operating procedures and monitoring), and Material (system infrastructure and technical support). The findings are expected to provide insights into strategies that hospitals can adopt to improve documentation completeness, thereby enhancing both the quality of clinical services and the accuracy of INA-CBGs claims (Purwanto, 2022; Ratri, 2022).

2. RESEARCH METHOD

This study employed a qualitative descriptive design to explore the causes of incomplete medical assessment documentation in the Electronic Medical Record (EMR) system at Dharma Yadnya General Hospital, Denpasar. The qualitative approach was chosen to obtain in-depth insights from healthcare professionals directly involved in documentation processes (Creswell, 2018).

The study was conducted at Dharma Yadnya General Hospital, which has fully implemented EMR since 2024. Participants were selected purposively to represent various roles in the documentation process. Five informants were included: two medical record officers, one head of the emergency nursing unit, one head of the inpatient nursing unit, and the head of the medical record department. This diversity of participants was intended to provide a comprehensive understanding of the issue from different perspectives.

Data were collected through in-depth interviews guided by a structured interview protocol. Interviews were conducted face-to-face, recorded with consent, and supplemented by field notes. To enhance the reliability of the data, triangulation was applied by cross-checking responses from different informants and reviewing related hospital documents.

Thematic analysis was applied using the 3M framework: Man (human resources, workload, and compliance), Method (SOPs, procedures, and monitoring), and Material (system features, devices, and infrastructure). Coding was conducted in three stages: open coding, axial coding, and selective coding (Strauss & Corbin, 1998). The results were synthesized into themes that reflect the main causes of incomplete documentation and their implications for INA-CBGs claims.

This study was conducted with respect for research ethics, including informed consent, confidentiality, and anonymity of participants. Informants were coded as I1–I5 to ensure privacy.

Grouping involved calculating the total score of each component of lecture assessment and the mean value. Typically in a good category, the score of each lecturer is less than mean; contrastingly, the score either greater than or equal with the mean fits in a poor category. Dataset was thereafter interpreted in frequency distribution, chi-square, and logistic regression.

3. RESULTS AND DISCUSSION

The study explored the causes of incomplete medical assessment documentation in the Electronic Medical Record (EMR) system at Dharma Yadnya General Hospital, Denpasar. Data were collected from five informants: two medical record officers (I1–I2), the head of the emergency nursing unit (I3), the head of the inpatient nursing unit (I4), and the head of the medical record department (I5).

Findings were organized according to the 3M framework (Man, Method, Material):

Man: Doctors (DPJP) were the main actors responsible for completing medical assessments. However, heavy workloads, particularly in the Emergency Department, and the absence of additional administrative staff often led to delays or incompleteness. Despite training and routine mentoring since 2024, incomplete entries were still found. Informants reported that follow-ups via WhatsApp groups were frequently needed to remind doctors.

Method: The hospital had Standard Operating Procedures (SOPs) for documentation and system reminders for incomplete assessments. Nonetheless, monitoring still relied heavily on manual follow-ups, and no formal sanctions or incentives were applied. This limited the effectiveness of compliance control.

Material: The EMR system was considered user-friendly, with supportive features such as auto-save. Weekly vendor maintenance and system backups were available, but occasional network disruptions and limited administrative staff hindered real-time documentation.

table 1 Summary of Findings Based on 3M Framework

Dimension	Key Findings
Man	High workload of doctors, lack of admin staff, forgetfulness in completing assessments, reliance on WA group reminders.
Method	SOP available but weak enforcement, reminder system exists, control depends on manual follow-up, no sanctions or incentives.
Material	User-friendly EMR, auto-save feature, weekly vendor maintenance, occasional network problems, limited devices and staff.

Discussion
Man

The results demonstrate that human resource factors remain a dominant cause of incomplete assessments. Doctors are responsible for data entry, but high patient loads limit their ability to complete documentation. These findings are consistent with Rahmawati (2021), who reported that workload is significantly associated with documentation completeness. The lack of administrative support exacerbates the issue, as doctors must balance clinical duties and administrative tasks. Incomplete documentation can lead directly to under-coding in INA-CBGs claims, reducing reimbursement for the hospital.

Method

The presence of SOPs and reminder systems indicates organizational readiness; however, weak enforcement and reliance on informal follow-ups reduce effectiveness. Purwanto (2022) found that SOPs without enforcement mechanisms fail to ensure compliance, while Ratri (2022) highlighted that hybrid control mechanisms (system reminders plus interpersonal communication) are more effective. In this case, manual follow-ups via WhatsApp helped mitigate gaps but were not sustainable. The lack of sanctions or incentives means doctors' compliance remains voluntary, increasing the risk of incomplete data submission and potential rejection or delay of INA-CBGs claims.

Material

The EMR system itself was not a major barrier, as users considered it user-friendly and reliable, supported by weekly vendor maintenance and backup systems. Similar findings were reported by Putri (2021) and Nugroho et al. (2020), who emphasized the importance of usability and infrastructure in sustaining EMR performance. However, limited devices and lack of administrative staff continued to hinder real-time data entry. Setiawan (2022) also noted that non-medical staff support is crucial for maintaining data quality. When information such as comorbidities or procedures is missed due to technical or staffing constraints, the severity level assigned in INA-CBGs may be reduced, leading to decreased reimbursement.

Overall Implication

This study highlights that incomplete EMR documentation is not merely a technical issue but a multidimensional challenge involving human resources, organizational methods, and system support. To ensure accurate and complete documentation, hospitals need to strengthen human resources by adding administrative staff, enforce SOPs with clear incentives or sanctions, and optimize system features. These steps are essential not only for improving clinical documentation but also for securing accurate and fair INA-CBGs reimbursement, thereby supporting both service quality and hospital financial sustainability.

4. CONCLUSION

This study concludes that incomplete medical assessment documentation in the Electronic Medical Record (EMR) system at Dharma Yadnya General Hospital is influenced by three main factors: Man, Method, and Material. From the Man aspect, heavy workloads and the absence of administrative support staff often hinder doctors from completing documentation, despite training and mentoring efforts. From the Method aspect, although Standard Operating Procedures (SOPs) and system reminders are available, enforcement remains weak and relies on manual follow-ups without formal sanctions or incentives. From the Material aspect, the EMR system is generally user-friendly and supported by weekly vendor maintenance; however, limited infrastructure and staffing continue to restrict real-time documentation.

The findings emphasize that incomplete documentation has direct implications for INA-CBGs reimbursement, particularly through under-coding when comorbidities, complications, or procedures are missing. This results in reduced claims, potentially affecting hospital financial sustainability.

Recommendations: Hospitals should (1) strengthen human resources by providing additional administrative staff to support documentation; (2) enforce SOPs with clear sanctions or incentives to improve compliance; and (3) optimize system features, infrastructure, and technical support to minimize barriers in real-time data entry. Strengthening these areas is essential not only for improving the completeness of clinical documentation but also for ensuring fair and accurate INA-CBGs claims.

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