



Analysis of the Evolving Role of Health Information Management Professionals in the Digital Era as Coders, Data Analysts, and Privacy Officers at Universitas Padjadjaran Hospital

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Abstract

Advances in health information technology and the mandatory implementation of Electronic Medical Records (EMRs) have transformed the work of Health Information Management (HIM) professionals. This study analyzed changes in HIM professional roles and competency strategies at Universitas Padjadjaran Hospital during digital transformation. A descriptive qualitative case-study design was applied using semi-structured interviews, passive participant observation, document review, and literature review. Four key informants were purposively selected: the medical records unit coordinator, a coding officer, a reporting officer, and a senior information technology officer. Observation was conducted for 21 working days in April 2026 for approximately four hours per day. The findings indicate a clear transition from paper-based document management to data-driven functions. Traditional tasks such as filing, assembling, and physical retrieval have decreased, while strategic roles as clinical coders, health data analysts, and privacy officers have become increasingly important. Operational challenges included incomplete electronic documentation, bridging problems between the hospital information system and BPJS services, system downtime, and the need for stricter access control and audit trails. Digitalization therefore changes rather than eliminates the HIM profession, requiring continuous re-skilling in coding accuracy, data analytics, interoperability, and information privacy.

Keywords: Electronic Medical Records, Health Information Management, Clinical Coder, Data Analyst, Privacy Officer.

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1. Introduction

Healthcare is highly dependent on the accuracy, availability, and speed of information management. Medical records are not merely a history of disease; they also function as legal evidence of healthcare services, a communication medium among healthcare professionals, and an important source for clinical and managerial decision-making. For decades, medical record management relied on paper-based processes that involved long physical workflows and were vulnerable to human error, document damage, and data loss. Indonesia's digital health transformation was strengthened by Minister of Health Regulation No. 24 of 2022 concerning Medical Records, which requires healthcare facilities to implement Electronic Medical Records (EMRs). The policy supports the development of an integrated national health information ecosystem, including SATUSEHAT, and is intended to improve efficiency, transparency, continuity, and security of health information (Ministry of Health of the Republic of Indonesia, 2022).

EMR implementation has substantially altered medical-record workflows. Traditional labor-intensive activities performed by Health Information Management (HIM) professionals, including assembling, filing, and physical record retrieval, are increasingly replaced by digital systems. This transition does not necessarily eliminate professional responsibilities; instead, it shifts them toward more analytical, technical, and governance-oriented functions. The source manuscript identifies emerging roles such as clinical coder, data analyst, and privacy officer, all of which are increasingly important for maintaining coding accuracy, data integrity, information quality, insurance-claim continuity, and patient-data confidentiality. Previous literature cited in the source manuscript suggests that EMR implementation challenges are frequently associated with human-resource readiness, dual workloads during the transition period, coding accuracy, and the broader evolution of medical-record professionals into health-data stewards. However, much of this literature focuses on general managerial barriers or software implementation issues. Less attention has been given to how professional role transformation occurs specifically in a university hospital, where health data are used not only for patient care but also for education, research, clinical audit, and organizational decision-making.

Universitas Padjadjaran Hospital provides a relevant setting for examining this transformation because the institution combines healthcare service delivery with academic and research functions. In such an environment, HIM professionals are expected to support accurate clinical documentation while also ensuring that data are usable for research and quality improvement. Failure to adapt to these responsibilities may contribute to poor information quality, claim delays, and increased risk of privacy





breaches. Therefore, this study aimed to analyze how the roles of HIM professionals have changed in the digital era at Universitas Padjadjaran Hospital and to identify competency strategies required to maintain professional relevance, data quality, and patient-information security after EMR implementation.

2. Research Methods

This study used a descriptive qualitative design with a case-study approach to explore the transformation of HIM professional roles at Universitas Padjadjaran Hospital. The qualitative approach was selected to capture work-process changes, adaptation barriers, inter-unit coordination, and emerging strategic functions following EMR implementation. Data were collected using methodological triangulation through semi-structured interviews, passive participant observation, document review, and literature review. Four key informants were purposively selected because of their direct involvement in EMR-related work: the medical records unit coordinator, a senior coding officer, a reporting officer with more than one year of work experience, and a senior information technology officer involved in EMR design, integration, and maintenance.

Passive participant observation was conducted in the Medical Records Unit for 21 working days in April 2026, excluding weekends and national holidays, for approximately four hours per day. Observation focused on real-time data integration, the flow of information from clinical input to HIM processing, changes in workflow following the elimination of physical retrieval, interaction with computer-assisted coding processes, and implementation of information-security protocols. Document review included standard operating procedures before and after EMR implementation, data-privacy policies, and healthcare quality-indicator reports. Literature review was used to compare field findings with professional standards, digital-health literature, and national EMR policies.

Data credibility was strengthened through member checking and source triangulation. Interview transcripts and preliminary interpretations were reconfirmed with informants. Information obtained from management, operational staff, and information technology personnel was compared to reduce single-source bias. The study also applied informed consent and confidentiality principles. The source manuscript does not report an institutional ethics committee approval number; this information should be added before submission if required by IJHS.



**Table 1. Key Informants and Their Roles in the Study**

Informant	Organizational Role	Main Information Provided
Informant 1	Medical Records Unit Coordinator	Operational management, policy adaptation, cross-unit coordination, and overall EMR implementation impact
Informant 2	Coding Officer	Diagnosis/procedure coding, claim-related coding issues, and coding workflow after EMR implementation
Informant 3	Reporting Officer	Electronic data completeness, statistical reporting, quality monitoring, and form availability
Informant 4	Senior IT Officer	System integration, infrastructure, access control, bridging, downtime, and EMR maintenance

3. Results and Discussion

a. Result

Table 2. Emerging HIM Roles, Responsibilities, and Observed Challenges

Emerging Role	Core Responsibility	Observed Challenge
Clinical Coder	Coding diagnoses/procedures; claim support; clinical-code validation	SIMRS-BPJS inconsistencies and bridging SEP verification
Health Data Analyst	Data completeness monitoring; statistical reporting; BOR/ALOS/TOI analysis	Incomplete electronic documentation and missing patient/clinical data
Privacy Officer / Data Governance	Access control, confidentiality, audit trail, privacy compliance	Downtime, cybersecurity exposure, and need for strict privilege management
Health Information Quality Analyst	Validation of data integrity and clinical-information quality	Need for continuous digital literacy and cross-unit coordination

b. Discussion

1) Transformation from Paper-Based Management to Data-Driven Management

The findings demonstrate a shift from paper-based medical record management toward data-driven health information management. Assembling, filing, and physical retrieval have decreased substantially, while HIM professionals increasingly function as guardians of clinical-data integrity. The role is therefore moving from document custody toward verification, interpretation, quality control, and information governance. The transition also changes the professional identity of HIM personnel. Rather than focusing primarily on the physical completeness of forms, staff are





increasingly expected to evaluate the validity and consistency of clinical content within the EMR. This requires stronger digital literacy, an understanding of database architecture and interoperability, and close collaboration with clinicians and information technology personnel.

2) HIM Professionals as Clinical Coders

Clinical coding remains a central HIM responsibility but has become more closely integrated with electronic systems and insurance-claim workflows. Coders translate diagnoses and procedures into standardized alphanumeric classifications, using ICD-10 for diagnoses and ICD-9-CM for medical procedures as stated in the source manuscript. Coding accuracy directly affects claim processing, including INA-CBGs reimbursement under the National Health Insurance system. At Universitas Padjadjaran Hospital, the source manuscript reports four coding officers: two assigned to inpatient services and two to outpatient services. A practical challenge identified during the transition involved bridging between the Hospital Management Information System and BPJS services. In several cases, a Participant Eligibility Letter (SEP) appeared in the hospital system but was not registered in BPJS VClaim. The operational response involved coordination between the hospital IT team and BPJS IT personnel in Sumedang, while coding staff coordinated with admission officers to recheck the SEP after service completion. This finding shows that coding work in a digital environment increasingly requires cross-system validation and interprofessional coordination.

3) HIM Professionals as Health Data Analysts

The data-analyst function involves collecting, processing, interpreting, and transforming large volumes of EMR data into information that can support evidence-based management. HIM professionals contribute to calculating hospital performance indicators such as Bed Occupancy Ratio (BOR), Average Length of Stay (ALOS), and Turn Over Interval (TOI), which can inform bed utilization, service performance, and managerial planning. The source manuscript reports two staff members in the medical records unit who perform reporting-related functions, including daily reporting, monitoring the completeness of EMR documentation, and following up on the availability of required electronic forms. Important problems were still identified in the completeness of clinical documentation, including incomplete clinical progress notes, unvalidated physician entries, medical-support results that had not been uploaded, and incomplete registration data such as education, blood group, guardian name, and





telephone number. These findings indicate that digital systems do not automatically guarantee data quality; active monitoring remains essential.

4) HIM Professionals as Privacy Officers and Data Governance Actors

The expansion of digital medical records has increased the importance of privacy, access control, and auditability. In the source manuscript, the privacy-officer function is described as ensuring that patient information is collected, stored, accessed, and managed in accordance with legal and organizational requirements. Important controls include role-based access privileges and audit trails that record who accessed a medical record, when the access occurred, and what information was changed. At Universitas Padjadjaran Hospital, privacy-related controls are supervised by the information technology function under the hospital information-system directorate. The source manuscript reports five IT personnel with different responsibilities. User access is based on individual accounts, and access rights are restricted according to job requirements. This control reduces inappropriate access and strengthens accountability for electronic activity.

System downtime remains an operational risk. Internal causes may include network or system disruption, while external causes include BPJS bridging failures that interfere with data validation and claim-document generation. The hospital maintains manual backup forms/files that can be printed when required so that healthcare services can continue during downtime; data are entered into the EMR after the system becomes available again.

5) Competency Implications and Organizational Adaptation

The findings confirm that digitalization creates professional disruption but does not remove the need for HIM expertise. Instead, automation reduces repetitive physical tasks and creates demand for re-skilling. Competency development should prioritize advanced coding, health-data analytics, data-quality audit, privacy and security governance, database literacy, interoperability, and communication across clinical, administrative, and IT units. The success of digital transformation was also influenced by organizational culture and leadership support. Interviews and source triangulation indicated that collaboration between hospital management, IT personnel, and HIM staff helped reduce resistance to change and supported adaptation to new workflows. This suggests that digital transformation should be managed as a socio-technical change involving people, technology, and organizational governance, rather than as a software implementation project alone.





The study's main contribution is its description of HIM role transformation in a university-hospital environment. The findings indicate that HIM professionals are evolving from record custodians into strategic health-information specialists who support clinical coding, data intelligence, information quality, and privacy governance. This professional repositioning is particularly relevant in an academic hospital because reliable EMR data are used not only for service delivery and reimbursement but also for clinical research, education, audit, and data-driven management.

4. Conclusion

Implementation of Electronic Medical Records at Universitas Padjadjaran Hospital has transformed the role of Health Information Management professionals from physical record management toward strategic data-oriented functions. Traditional tasks such as assembling, filing, and physical retrieval have decreased, while roles as clinical coders, health data analysts, information-quality analysts, and privacy officers have become more prominent. HIM professionals are now increasingly responsible for coding accuracy, clinical-data integrity, statistical information, access control, audit trails, and coordination across hospital information systems.

The transition also creates practical challenges, including incomplete electronic documentation, SIMRS-BPJS bridging problems, downtime, and the need for stronger digital competency. Continuous professional development in coding, data analytics, interoperability, privacy, and cybersecurity is therefore necessary. The findings support the view that digitalization does not eliminate the HIM profession; instead, it redefines the profession as a strategic partner in data-driven hospital management, patient safety, research, and information governance.

5. Compliance with Ethical Standards

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Disclosure of Conflict of Interest

The source manuscript does not report any conflict of interest. The authors should confirm the final declaration before submission.

Statement of Informed Consent

The source manuscript states that participants were informed about the study and provided consent prior to the interviews. Patient information and informant identities were treated as confidential.





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