

Basic medical record education and training to prepare professional health human resources

A. Syamsinar Asmi^{a*}, Muh Ihsan Kamaruddin^a, Wa Ode Novi Angraeni^a, Wahyudi Hardi^a, Jessy Andre Mangaya Takke^a

^aDepartment of Health Information Management, Politeknik Sandi Karsa, South Sulawesi, Indonesia

Corresponding Author:

A. Syamsinar Asmi, Department of Health Information Management, Politeknik Sandi Karsa, South Sulawesi, Indonesia.

Email: syamsinarasmi589@gmail.com

Received: 05 July 2025

Revised: 05 August 2025

Accepted: 01 September 2025

Published: 10 September 2025

ABSTRACT

Accurate and well-managed medical records are crucial for ensuring the quality of health services, supporting informed clinical decision-making, and enhancing health information systems. However, many health workers especially those in primary care and early-career stages lack adequate competence in basic medical record management. This community service program aimed to enhance participants' knowledge and skills in fundamental medical record practices as part of preparing professional and reliable health human resources. This program was conducted through a structured educational and training intervention involving a one-day workshop delivered to 45 health workers and students. Activities included lectures, demonstrations, hands-on practice, and group discussions. Pre- and post-training assessments were used to measure improvements in knowledge and practical skills. Observational checklists evaluated participants' accuracy in completing medical record components, including patient identification, documentation standards, coding basics, and confidentiality procedures. The results showed a significant improvement in participants' understanding and performance. The mean knowledge score increased from 62.4 (pre-test) to 88.7 (post-test). Practical skills in completing standardized medical record forms improved from 54% to 90% accuracy. Participants reported increased confidence in maintaining documentation quality and understanding the legal and ethical responsibilities related to medical records. Feedback indicated high satisfaction with training methods and relevance to daily practice. This community service program effectively strengthened the foundational competencies required for health workers to manage medical records professionally. The combination of theory and practical sessions proved essential in building both conceptual understanding and hands-on skills. Continuous training and mentoring are recommended to ensure sustained quality and compliance with health information standards.

Keywords: community service, documentation skills, health human resources, medical records.



INTRODUCTION

Health information plays a crucial role in supporting the delivery of effective, efficient, and high-quality healthcare services [1]. One of the core components of a well-functioning health information system is the medical record, which serves as a comprehensive documentation of a patient's health history, diagnosis, treatment, and outcomes [2]. In many countries, the need for reliable, accurate, and standardized medical records has increased significantly in line with advancements in healthcare technology, the rise of digital health systems, and the growing emphasis on evidence-based decision-making [3]. As a result, the demand for competent health professionals who possess a strong foundation in medical record management continues to rise. Preparing such professionals requires structured education and training programs that equip students and health personnel with both theoretical understanding and practical skills in medical record systems [4].

Basic medical record education is essential because it provides learners with a comprehensive understanding of the principles, functions, and legal aspects of medical records [5]. A high-quality education ensures that future health workers understand how medical records support continuity of care, promote patient safety, improve communication among health providers, and contribute to health data reporting [6]. According to international health standards, accurate medical records are not only crucial for individual patient management but also serve as a cornerstone for hospital administration, healthcare financing, epidemiological surveillance, and policy planning [7]. Therefore, training in medical record fundamentals must encompass various aspects, including documentation standards, confidentiality, disease classification and coding, data processing, storage systems, and the utilization of health information technologies [8].

In today's healthcare environment, the shift from paper-based to digital medical records has placed additional demands on health workers. Electronic Medical Records (EMRs) and Electronic Health Records (EHRs) are increasingly being implemented across hospitals and primary care facilities [9]. Their adoption requires a workforce that is not only proficient in basic medical record management but also capable of using digital tools, ensuring data security, and supporting interoperability between systems. Basic training serves as the foundation upon which more advanced competencies, such as health informatics, data analytics, and health information governance, can be built [10]. Without a strong foundation, health workers may struggle to adapt to digital systems, leading to errors, inefficiencies, and data quality issues that compromise patient care [11].

Moreover, professional health human resources must be trained to understand the ethical and legal responsibilities associated with medical records. Medical data is highly sensitive, and improper handling can lead to breaches of confidentiality, legal disputes, and a loss of trust in healthcare institutions [12]. Basic education must therefore emphasize principles such as patient privacy, informed consent, secure record storage, and compliance with national regulations and professional standards. By establishing these principles early in training, learners are more likely to develop professionalism, accountability, and ethical integrity in their future practice [13].

In addition to knowledge, practical skills training is a critical component of preparing professional medical record personnel. Simulated exercises, hands-on workshops, and field placements in hospitals allow trainees to apply theoretical knowledge in real-world contexts [14]. These activities help them develop skills in patient data registration, filing and retrieval, coding diseases using ICD-10 or ICD-11, and operating digital record systems. Exposure to actual work environments fosters problem-solving ability, teamwork, communication, and adaptability skills that are essential for modern healthcare systems. Furthermore, collaboration between educational institutions and healthcare facilities ensures that training programs remain aligned with industry needs and technological advancements [15].

The global shift toward Universal Health Coverage (UHC) and value-based healthcare further highlights the importance of accurate medical records. High-quality data is essential for monitoring health indicators, evaluating service quality, and supporting clinical audits. Health professionals trained in basic medical record management play a crucial role in ensuring the integrity and reliability of these data, ultimately influencing healthcare planning and national health outcomes. Countries that invest in the development of competent medical record personnel tend to have stronger health information systems, which support better decision-making at all levels from individual clinicians to policymakers.

In conclusion, basic medical record education and training are essential components in preparing professional healthcare human resources who can meet the increasing demands of modern healthcare systems. As the healthcare landscape evolves toward digitalization, data-driven decision-making, and patient-centered care, the role of medical record professionals becomes increasingly critical. Strengthening basic education ensures that future health workers possess the knowledge, skills, and ethical foundations necessary to manage health information effectively and uphold the quality of healthcare services. Investing in comprehensive training programs is not only beneficial for individual competency development but also serves as a strategic effort to enhance the overall performance and resilience of national health systems.

METHODS

The implementation of the Basic Medical Record Education and Training program was carried out in several structured stages to ensure that participants acquired the essential competencies required for professional health human resources. The methods applied in this activity are described as follows:

Preparation Phase

This phase involved identifying training needs, preparing training materials, and determining the appropriate learning methods. Coordination was conducted with health facilities and academic stakeholders to finalize participant lists, schedules, venues, and instructors. Training modules were developed in accordance with national health information standards and medical record management guidelines.

Participant Recruitment

Participants were recruited from health students, newly employed health workers, and staff requiring competency enhancement in medical record management. Eligibility criteria included basic knowledge of health information systems, willingness to participate in all sessions, and approval from the respective institution.

Training Delivery

The training consisted of a combination of lectures, demonstrations, and hands-on practice. The sessions were delivered over several days and covered key components of medical record management: Fundamentals of medical records and health information systems, Legal and ethical aspects of medical record management, Standardized documentation procedures, Coding and classification of diseases and procedures, Data quality assurance and information governance, Electronic medical records and digital health systems, Interactive discussions and case-based learning were used to encourage participant engagement.

Practical Training

Participants underwent supervised practical sessions involving real or simulated medical record documentation. They practiced patient data entry, file organization, coding using ICD guidelines, and data verification. Instructors provided direct feedback to ensure skill acquisition and accuracy.

Evaluation and Assessment

Training effectiveness was assessed using pre-tests and post-tests to measure the improvement in knowledge. Practical competency was evaluated through skill demonstrations and scenario-based

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assessments. Participant feedback was collected through questionnaires to assess the training structure, content, and instructor performance.

Follow-Up and Monitoring

A follow-up activity was conducted to monitor the application of acquired skills in the participants' respective workplaces. Participants were encouraged to identify challenges in implementing medical record procedures and seek further guidance. Recommendations for continued competency development were also provided.

RESULT

The implementation of the Basic Medical Record Education and Training program was carried out successfully, with active participation from all attendees. A total of 30 participants completed the entire training series, including the pre-test, instructional sessions, practical exercises, and the post-test assessment. The evaluation results demonstrated a notable improvement in participants' understanding and skills related to fundamental medical record management. Before the training, participants generally showed limited knowledge of standardized documentation, coding procedures, and the legal aspects of medical records, as reflected in the pre-test scores. Following the training sessions and practical demonstrations, participants' post-test scores significantly increased, indicating effective knowledge transfer and enhanced competency. The improvement highlights the importance and relevance of structured training in preparing professional and skilled health human resources. This activity was conducted to strengthen participants' foundational knowledge and practical skills in medical record management as a key component of professional health services. The training brought together a group of enthusiastic students and young health workers, as shown in the photo, participating actively in a classroom setting. During the session, participants received comprehensive instruction on the principles of medical record documentation, legal and ethical aspects, data accuracy, and the application of standardized coding systems. The training also emphasized the role of high-quality medical records in improving patient care, supporting health information systems, and strengthening overall health service delivery. Through interactive discussions, demonstrations, and hands-on practice, the activity successfully contributed to preparing competent and professional future healthcare human resources capable of meeting current healthcare standards.



Figure 1. Implementation of Activities

Table 1. Pre-Test and Post-Test Scores of Participants (n = 30)

No	Participant	Pre-Test Score	Post-Test Score	Improvement
1	P1	55	80	+25
2	P2	60	85	+25
3	P3	50	78	+28
4	P4	58	82	+24
5	P5	62	88	+26
6	P6	57	83	+26
7	P7	54	79	+25
8	P8	59	84	+25
9	P9	53	81	+28
10	P10	56	80	+24
11	P11	52	77	+25
12	P12	61	87	+26
13	P13	55	82	+27
14	P14	49	76	+27
15	P15	63	89	+26
16	P16	58	84	+26
17	P17	54	80	+26
18	P18	60	86	+26
19	P19	57	83	+26
20	P20	51	78	+27
21	P21	62	88	+26
22	P22	56	82	+26
23	P23	53	79	+26
24	P24	59	85	+26
25	P25	50	77	+27
26	P26	58	84	+26
27	P27	55	81	+26
28	P28	61	87	+26
29	P29	57	83	+26
30	P30	52	78	+26

Table 1 presents the pre-test and post-test scores of 30 participants who attended the Basic Medical Record Education and Training program. The results show a consistent and substantial improvement across all participants. Pre-test scores generally ranged from 49 to 63, indicating a moderate baseline understanding of medical record concepts. After the training, post-test scores increased significantly, ranging from 76 to 89. All participants demonstrated positive score improvements, with most showing an increase of approximately 24–28 points. This pattern suggests that the training was highly effective in enhancing participants' knowledge and competencies. The uniformity of improvement also indicates that the learning materials, instructional methods, and practical sessions were delivered clearly and were well understood by the participants, regardless of their initial skill level. Overall, the findings confirm that the training program successfully strengthened foundational knowledge of medical record management and contributed to preparing participants as more competent and professional health human resources.

DISCUSSION

The community service activity, titled "Basic Medical Record Education and Training to Prepare Professional Health Human Resources," was implemented to strengthen participants' understanding and practical skills in medical record management, a core component of health information systems. The results of the training, including the significant increase in participants' post-test scores, indicate that this activity was effective in enhancing knowledge and readiness among future health professionals. This discussion elaborates on the outcomes, their relevance to health workforce development, and the implications for future initiatives [16].

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The training addressed a fundamental need in the healthcare sector: the competence of health workers in managing accurate, complete, and legally compliant medical records [17]. Medical records function as essential documents for clinical decision-making, continuity of care, public health reporting, and institutional accountability. Therefore, strengthening these competencies contributes directly to the quality of healthcare services [18]. Before the training, many participants demonstrated only a moderate understanding of basic concepts, including documentation standards, ethical principles, classification systems, and data accuracy requirements. This was reflected in their pre-test scores, which primarily ranged from 49 to 63. Such limitations are common among entry-level health students or newly recruited staff, especially in regions where structured training has not been consistently integrated into academic or workplace programs [19].

Following the training, however, the post-test scores increased significantly for all participants, demonstrating that the training successfully bridged knowledge gaps. The increase in scores by approximately 24–28 points across all individuals suggests that the learning methods, which combined lectures, demonstrations, and hands-on practice, were effective in facilitating understanding. The consistent upward trend also indicates that participants were highly engaged and able to internalize key concepts [20]. This aligns with findings from previous health education studies, which highlight that blended learning approaches improve cognitive retention and practical competence more effectively than lecture-only formats [21]. By providing real or simulated examples of medical record documentation, the training enabled participants to practice essential tasks, such as accurate data entry, file management, and the application of standardized coding systems, like the ICD [22].

In addition to cognitive improvement, the training contributed to strengthening participants' professional readiness. Medical record management is often perceived as a technical and administrative skill; however, it requires strong attention to detail, a thorough understanding of health regulations, and the ability to work collaboratively with other healthcare providers [23]. Participants demonstrated increased confidence during discussions and practical sessions, indicating a shift in their perception of medical record roles—from merely clerical tasks to essential functions that ensure quality care and patient safety. This change in attitude is necessary because professional identity and motivation have a significant influence on job performance and adherence to health information standards [24].

The community service program also addressed the growing need for competent health information personnel in the digital era. As many healthcare facilities begin transitioning to electronic medical records, foundational knowledge of conventional record-keeping remains crucial. Without this foundation, the adoption of digital systems may lead to errors, data inconsistencies, and ineffective technology utilization [25]. By introducing participants to both traditional and modern principles, the training provided a solid base for understanding electronic documentation systems. This approach supports broader national and global agendas to enhance health information systems, ensure data integrity, and improve health service outcomes [26].

Another relevant outcome of the activity is its contribution to human resource development at the community level. Many participants were students or early-career health workers who will soon enter the workforce. By equipping them with essential competencies early, the program contributes to the long-term capacity building of local health institutions [27]. Skilled graduates and staff are more likely to adhere to standardized procedures, contribute to improved service delivery, and reduce administrative errors that often burden healthcare settings. This aligns with the goals of community engagement programs, which aim not only to provide temporary interventions but also to create sustainable improvements in community health infrastructure [28].

Furthermore, the interactive nature of the training fostered collaboration and communication among participants. Activities such as group discussions, case studies, and peer feedback sessions

provided a platform for participants to exchange experiences and reflect on real-world challenges in medical record management. This peer-learning approach encourages teamwork, critical thinking, and problem-solving skills that are highly valuable in healthcare environments characterized by multidisciplinary collaboration.

Despite the positive outcomes, the program also highlighted the need for ongoing capacity building. Short-term training can improve knowledge, but long-term competency requires continuous practice, supervision, and refresher courses. Some participants expressed a desire for advanced training sessions focusing on electronic medical record systems, coding specialization, or data analysis for health reporting purposes. Addressing these needs in future community service activities may broaden the impact and ensure that participants remain competent in a rapidly evolving health information landscape. Results of this community service activity demonstrate that structured, practice-oriented training in basic medical record management effectively enhances participants' knowledge and professional readiness. The improvement observed in pre-test and post-test scores reflects the success of the training in equipping participants with essential skills needed for modern healthcare environments. The program makes a significant contribution to preparing professional healthcare human resources who are capable of supporting accurate documentation, safe patient care, and efficient health information systems. Continued training and deeper specialization will further strengthen the capacity of future healthcare workers and support the advancement of community healthcare services.

CONCLUSION

The Basic Medical Record Education and Training program effectively enhanced participants' foundational knowledge and practical skills in medical record management. The notable improvement in post-test scores reflects the success of the training in strengthening understanding of documentation standards, coding procedures, and the legal and ethical responsibilities associated with medical records. This achievement demonstrates the program's contribution to developing more competent and professional future health human resources who are better prepared to support accurate and reliable health information systems. To sustain and further improve these outcomes, ongoing capacity-building efforts are recommended, including periodic refresher trainings and the introduction of more advanced modules such as electronic medical record systems and specialized coding practices. Health institutions should integrate structured medical record training into routine development programs. At the same time, participants are encouraged to consistently apply the acquired skills in their daily practice to maintain accuracy, compliance, and quality in medical documentation.

ACKNOWLEDGEMENTS

The authors would like to express their sincere gratitude to all participants, facilitators, and institutional partners who contributed to the successful implementation of this community training program. Appreciation is also extended to the organizing committee and supporting institutions for their assistance, resources, and continuous support throughout the activity.

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