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ANALYSIS OF THE IMPLEMENTATION OF ELECTRONIC MEDICAL RECORDS IN COMMUNITY HEALTH CENTERS

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ABSTRACT
The implementation of Electronic Medical Records (EMR) in Community health centers is a strategic step in improving the efficiency and quality of health services. This study aims to analyze the implementation of RME in the West Kotawaringin Regency Health Center with a qualitative descriptive method. This study aims to analyze the application of EMR in the West Kotawaringin Regency Health Center with a qualitative descriptive approach. The research was carried out on three health centers that have implemented EMR, namely the Arsel, Mendawai, and Kumpai Batu Atas Health Centers, in the April-June 2024 period. Data was collected through in-depth interviews and documentation, including aspects of patient registration, data distribution, filling in clinical information, data processing, financing claims, data storage, quality assurance, and EMR content transfer. The 15 respondents consisted of medical personnel and community health centers administration. Data analysis involves three key steps: data reduction, data presentation, and conclusion and verification. The results showed that although the majority of respondents understood the benefits of RME, they faced various obstacles, such as limited technology infrastructure, lack of training for healthcare workers, and system integration problems. The use of EMR has accelerated the service process, but there is still a reliance on manual methods in several stages. In addition, data reporting is often constrained by technical issues and coordination between units. The study findings indicate that while most respondents recognize the benefits of electronic medical records , several challenges hinder optimal implementation. Key obstacles include limited technological infrastructure, insufficient training for healthcare workers, and difficulties in system integration.

Keywords: community health center; electronic implementation; medical records

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INTRODUCTION

The development of information technology in the health sector is now advancing in various aspects, including the development of health sciences, organization, treatment, medical records, and improving the quality of services at community health centers. In this era of Industry 4.0, the implementation of health information technology is one way to mitigate future disparities (Ludwick & Doucette, 2009). Therefore, every healthcare facility must have a health information system.According to the Indonesian Ministry of Health Regulation No. 21 of 2020 on the Strategic Plan of the Ministry of Health, one of the key aspects in health development governance is the integration of information systems, as well as health research and development. The Health Information System is designed to provide faster, valid, and electronically integrated health data or information services through strengthened health information services, standardized and integrated electronic-based Health Information System, and the implementation of Health Information System in healthcare facilities (Permenkes No. 21, 2020). This can be achieved by optimizing the use of digital health innovations, maximizing internet utilization, collecting real-time surveillance data, and making a gradual transition from aggregate to individual reporting—an essential long-term investment to enhance routine data reporting.

The Indonesian Ministry of Health Regulation No. 24 of 2022 on Medical Records states in its considerations that the advancement of digital technology in society has led to the transformation of digital healthcare services, making it necessary to implement electronic medical records based on data security and confidentiality principles (Permenkes No. 24, 2022). Article 3, paragraph 1, stipulates that "Every healthcare facility is required to implement Electronic Medical Records (Permenkes No. 24, 2022).Despite this regulation, the adoption of electronic medical records in Indonesian hospitals remains relatively low due to significant implementation challenges. Many hospitals have yet to transition to an electronic system or optimize the existing one. The use of EMR in Indonesian healthcare facilities has not been evenly distributed. According to data from the Directorate of Referral Health Services (2022), the target for the percentage of referral hospitals implementing integrated EMR was 60%, and the actual achievement was also 60%, meaning approximately 1,687 hospitals have implemented integrated EMR.

At Simpang Lima Gumul Hospital in Kediri, medical records have been implemented electronically. However, research findings indicate that there are still procedural barriers. The medical record staff at Simpang Lima Gumul Hospital follow different procedures when implementing EMR. These differences occur from the registration to the reporting process, resulting in data reports that should be received automatically still being collected manually (Wardani & Humairo, 2022).Another hospital that has implemented EMR is X General Hospital in Bandung. Research findings suggest that this hospital has not yet optimally implemented EMR due to incomplete supporting components. These components include inadequate facilities and infrastructure, the absence of dedicated staff or a specialized team to handle EMR implementation, and the lack of written policies and standardized operating procedures (Rosalinda et al., 2021).

At the community health center level, the Ministry of Health does not yet have comprehensive data on EMR implementation. In Central Kalimantan Province, data from the Central Kalimantan Provincial Health Office in2023 indicate that only three Community health centers (1.4%) out of 205 Community health centers have adopted EMR. In West Kotawaringin Regency, three out of 18 Community health centers have implemented EMR. EMR is still a new concept for Community health centers , and there are no clear procedures for its implementation. The procedural differences between hospitals and Community health centers occur from the registration process to the reporting system, causing data that should be received automatically to still be delivered or collected manually.Therefore, further analysis is needed to assess the compliance of EMR implementation in three Community Health Centers in West Kotawaringin Regency with the current regulations. This analysis will serve as a learning process and an improvement effort for Community Health Centers that have yet to implement electronic medical records. Based on this background, an analysis is necessary to provide an overview of the implementation of electronic medical records in Community Health Centers in West Kotawaringin Regency. The aim of this study is to evaluate the extent to which electronic medical records have been implemented in accordance with existing regulations and to identify challenges and opportunities for improvement in the adoption of EMR systems.

METHOD

This study employs a descriptive qualitative approach. A qualitative descriptive study aims to explore phenomena in their natural setting, with the researcher acting as the key instrument. Data collection is conducted through triangulation, and analysis follows an inductive process, emphasizing meaning over generalization. The qualitative approach is chosen to provide an in-depth, transparent, and specific description of the implementation of EMR in public health

centers in Kotawaringin Barat Regency.This study takes place in public health centers in Kotawaringin Barat Regency, conducted from April to June 2024. The study focuses on healthcare personnel directly involved in the EMR system, including medical record officers, IT staff, doctors, nurses, pharmacists, admission, and administrative personnel. The sample selection follows a purposive sampling method to ensure relevance to the research objectives. The inclusion criteria consist of healthcare personnel with at least three years of experience, a minimum education level of high school or relevant professional qualifications, and direct involvement in EMR implementation. Exclusion criteria include personnel with less than three years of experience, those not directly related to EMR, and individuals in structural leadership positions. Informants are selected based on their expertise and involvement in EMR implementation.

Data sources include interviews, documentation, and triangulation. In-depth interviews involve direct engagement with informants through open-ended questions, with saturation reached when responses become repetitive. Documentation involves reviewing patient EMRs, while triangulation ensures data validity by comparing multiple sources, including the Secretary of the Kotawaringin Barat Health Office.Data analysis follows three main steps: 1) Data Reduction – Summarizing and categorizing essential information while discarding irrelevant data; 2) Data Presentation – Organizing information in a structured manner to identify meaningful patterns, often using narrative descriptions, diagrams, and flowcharts; 3) Conclusion and Verification – Drawing final conclusions based on data analysis and ensuring validity through continuous verification.

Ethical considerations include obtaining informed consent, ensuring anonymity by using coded responses, maintaining data confidentiality, and balancing potential harm and benefits for participants. The study prioritizes ethical responsibility to protect participants' rights and integrity. This study does not require ethical clearance because it does not involve human subjects, personal data, or any sensitive information that could impact individuals' privacy and well-being. The research focuses solely on analyzing the implementation of electronic medical records in community health centers from an administrative and technical perspective. Data used in this study are based on publicly available information, institutional policies, and system evaluations, without collecting personal or confidential patient data. Therefore, ethical approval is not necessary.

RESULT

Table 1 presents a structured overview of key informants involved in various aspects of patient registration, medical record management, clinical information entry, and quality assurance within a healthcare facility. The informants are categorized based on their respective roles and responsibilities, along with details such as gender, age, years of work experience, educational background, and professional designation.Three primary informants handle claim data entry under the registration and cashier department. These individuals, identified as Sn (35 years old), Ei (36 years old), and Mi (40 years old), have varying years of experience ranging from 6 to 8 years. Their educational qualifications range from high school (SMA) to an associate degree (D3), and they serve as administrative staff responsible for data input during patient registration.Three key informants—Va (29 years old), At (50 years old), and Da (30 years old)—work in the medical records department as Medical Record Information Officers (PMIK). Their educational backgrounds are at the associate degree (D3) level, and their work experience varies between 2 and 7 years.Healthcare professionals in this category are responsible for recording and managing clinical data. This section consists of doctors, nurses, and pharmacy staff. Two doctors, Sm (33 years old) and La (34 years old), both hold a bachelor's degree (S1) and have 5 to 8 years of experience working in the

outpatient department. Additionally, two nurses, Aa (35 years old) and Ea (39 years old), also hold a bachelor's degree and contribute to clinical documentation. Meanwhile, two pharmacy professionals, Ys (29 years old) and Sr (35 years old), play roles in laboratory and pharmaceutical services, with Sr serving as a pharmacist.

One informant, Mh (25 years old), is responsible for medical record content transfer within the IT department. He holds a bachelor's degree (S1) and has two years of work experience, contributing to the digital management and storage of medical records.In addition to the primary informants, the study includes triangulation through an expert informant, As (51 years old), who serves as the Secretary of the Health Office. With 26 years of experience and a master's degree (S2), his insights provide validation and a broader perspective on the overall healthcare documentation processes.This structured distribution of roles highlights the diverse expertise involved in medical data management, ensuring accuracy, efficiency, and quality control in patient information handling.

Table 1.
Respondent characteristics (n= 14)

No	Dimension	Initial Informan	Sex	Age (years)	Work Time (years)	Education	Department	Profession	Remarks
		Sn	Female	35	6	Associate Degree	Registration	Admin	Primary Informant 1
	Patient Registration	Ei	Female	36	6	High School	Registration	Admin	Primary Informant 2
1	Claim Data Entry	Mi	Female	40	8	High School	Registration	Admin	Primary Informant 3
		Va	Female	29	2	Associate Degree	Medical Records	Medical Record Information Officer	Primary Informant 4
	Medical Record Data Distribution and Information Processing	At	Male	50	7	Associate Degree	Medical Records	Medical Record Information Officer	Primary Informant 5
2		Da	Female	30	5	Associate Degree	Medical Records	Medical Record Information Officer	Primary Informant 6
		Sm	Female	33	5	Bachelor's Degree	Outpatient Dept.	Doctor	Primary Informant 7
		La	Female	34	8	Bachelor's Degree	Outpatient Dept.	Doctor	Primary Informant 8
	Clinical Information Entry	Aa	Male	35	8	Bachelor's Degree	Outpatient Dept.	Nurse	Primary Informant 9
		Ea	Male	39	4	Bachelor's Degree	Outpatient Dept.	Nurse	Primary Informant 10
		Ys	Female	29	8	Associate Degree	Pharmacy	Laboratory	Primary Informant 11
3		Sr	Female	35	5	Bachelor's Degree	Pharmacy	Pharmacist	Primary Informant 12
4	Quality Assurance in Medical Record and Storage Medical Record Content Transfer	Mh	Male	25	2	Bachelor's Degree	IT	IT	Primary Informant 13
						Triangulation			
1	Triangulation 1	As	Male	51	26	Master's Degree	Health Office	Health Office Secretary	Triangulation Informant 1

The implementation of the electronic medical record (EMR) system at Community Health Centers has been effective in collecting patient social data, though challenges remain. While

the system includes essential information, predefined employment categories are limited, requiring manual input. Data collection relies on direct interviews and verification to ensure accuracy, but improvements are needed for broader data coverage.Challenges in filling out patient identity and social data stem from patients' lack of understanding, limited system options for occupation and education, and incomplete identification documents. Staff must verify information manually, increasing workload and the risk of inaccuracies.The EMR registration interface, though functional, has usability issues such as a small display, lack of notification for incomplete fields, and restricted access to computers and laptops. Expanding accessibility to mobile and tablet devices could improve efficiency. EMR data distribution is structured based on access rights, allowing nurses, doctors, and other healthcare providers to input and retrieve information efficiently. However, adaptation challenges persist, with some units still relying on manual records, causing inconsistencies. Training and improved access management are being implemented to optimize data integration.

System downtime, mainly due to power outages, forces staff to use manual records, disrupting workflows and increasing errors. Although downtimes are brief, they impact service efficiency and require efforts to manage backlogs. Clinical information recording faces obstacles such as high patient volumes, delays in laboratory results, and system limitations. Real-time documentation is prioritized to ensure accuracy, but integration issues between laboratory and EMR systems necessitate manual input, slowing processes. Collaboration among doctors, nurses, and laboratory staff ensures medical records remain comprehensive and up-to-date, supporting accurate clinical decision-making.When errors in clinical documentation occur (e.g., incorrect diagnoses, treatments, or prescriptions), corrections are made directly in the EMR system using an editing feature. Medical teams, including doctors, nurses, pharmacists, and laboratory analysts, are notified immediately after corrections are made to ensure updates are applied quickly in patient care. This coordinated approach helps maintain accurate and consistent data, which is essential for high-quality care and preventing potential errors that could impact patient outcomes.

The EMR data processing at the Community Health Centers starts with ensuring the completeness and accuracy of information provided by doctors, nurses, and laboratory staff. Each data entry, including diagnoses and medication dosages, is thoroughly verified, with discrepancies clarified with the relevant medical team to ensure accurate medical records that support effective decision-making.The EMR uses standard coding systems like ICD-10 for diagnoses and procedures. Each entry is verified for compliance with the correct codes, and any discrepancies are addressed by confirming with the medical team. Accurate coding is vital for reporting, administration, and maintaining healthcare quality. Internally, the EMR supports medical record management, service quality monitoring, and statistical analysis for planning and evaluation. Externally, it facilitates reporting to Health insurance and the Health Department, ensuring that data is well-organized and meets external standards for transparency and claim submission.EMR analysis at the community health center ensures compliance with healthcare standards, identifies patterns in care, and monitors the effectiveness of treatments. It supports timely medical decision-making and improvements in service quality by evaluating treatment trends and patient needs.

Health insurance claims are processed manually at the community health centers, as the system does not yet support automatic integration. However, the EMR provides necessary support by making medical actions and examinations readily accessible for the administrative and cashier teams. Effective coordination among the IT department, medical staff, and administrative staff ensures smooth claims processing despite the lack of automation.EMR data is securely stored with automatic backup systems, ensuring constant data

availability.Strict access rights and monitoring systems protect data integrity and confidentiality, allowing only authorized personnel to access or modify patient information. The community health center uses a primary and backup server to store EMR data securely. Routine monitoring, data integrity checks, and access protocols ensure quick recovery in case of issues with the primary server, minimizing the risk of data loss and maintaining accuracy. The EMR at the Community Health Centers is integrated with the Satu Sehat platform, in line with Ministry of Health standards, allowing data sharing with other health platforms. However, automatic integration with the health insurance system is still under development, and some data must be entered manually.Currently, there is no fully functional audit trail system in the EMR. However, dynamic evaluations of the EMR are conducted with feedback from medical record staff and healthcare providers, which are sent to the Regional Health Information System for improvements. Future plans include the implementation of a structured audit trail system to ensure data security, integrity, and accountability.The release of EMR data to the Ministry of Health platform is managed by designated medical record staff with exclusive admin access. They ensure that the data being released is verified, accurate, and confidential, with strict supervision and access restrictions to maintain data integrity.

DISCUSSION

The results of this study provide an overview of the analysis of the implementation of Electronic Medical Records (EMR) at the Kotawaringin Barat District Health Center. This study shows that the implementation of EMR has a positive impact on the completeness and accuracy of patient identity data recording. This condition indicates challenges in ensuring data accuracy, as also found in the research by Putri et al. (2021), which reported similar difficulties in other areas due to limited official documents. Based on the Health Information Systems Theory, system flexibility is key to successful data management, as found in the study by Wardhani et al. (2020) in Sleman District, where the addition of socioeconomic categories in EMR improved recording efficiency by up to 25%. Besides challenges related to data completeness, the registration interface in the EMR system also poses a barrier. This study reveals that the unresponsive interface and lack of notification features for unfilled columns hinder the efficiency of data entry. This contradicts the principles of Human-Computer Interaction (HCI), which emphasizes the importance of an intuitive system that provides immediate feedback to users (Shneiderman, 2010). In contrast, research by Rahmawati and Gunawan (2019) noted that systems with user-friendly interfaces and real-time validation features can increase data recording speed and accuracy by up to 30%.

On the other hand, patient education and staff training are crucial aspects that need attention. A lack of patient understanding of questions, especially related to socioeconomic data, often becomes the main barrier in collecting accurate data. The Theory of Effective Communication (Rogers, 1983) emphasizes that interpersonal education can improve patients' understanding of the importance of filling in accurate data. Previous research by Ambarwati et al. (2018) showed that routine socialization to patients improved their compliance in bringing official documents by up to 40%. Meanwhile, intensive staff training, as revealed by Kurniasari et al. (2019), can increase the technical competence of staff in managing digital systems by 50%. This study shows that the distribution of EMR data plays an essential role in improving the efficiency and quality of healthcare services. This process aligns with the principles outlined in Article 5, Paragraph 1 and Paragraph 2, letter (a) of the Minister of Health Regulation No. 24 of 2022, which emphasizes the importance of completeness, accuracy, and security of medical records for medical decision-making.

However, the implementation of EMR at the Health Center still faces several obstacles. As a new system, healthcare workers need time to adapt, and some service units still rely on manual medical records, which can result in data discrepancies. Other technical barriers include inadequate access control settings and system downtime due to power outages. During downtime, staff must switch to manual recording, which is slower and more prone to input errors, thus slowing down services in critical units such as pharmacy and outpatient services.According to Rogers' Diffusion of Innovations Theory (2003), the successful adoption of new technologies such as EMR is heavily influenced by factors like system complexity, perceived benefits, and ease of use. Noviani et al. (2019) highlighted the importance of intensive training and continuous technical support in improving healthcare workers' acceptance and use of EMR systems across various Health Centers in Indonesia.

Additionally, research by Pratama et al. (2018) found that providing supporting infrastructure, such as backup power sources (generators), is crucial for ensuring the continuity of EMR system operations, reducing downtime by up to 35%, and improving service efficiency. Sari and Handayani (2020) also showed that systematic access control settings in EMR can enhance patient data security, in accordance with patient data protection regulations outlined in Article 6, Paragraph 1 of Minister of Health Regulation No. 24 of 2022.This study shows that the filling of clinical information in the implementation of Electronic Medical Records (EMR) at the Kotawaringin Barat District Health Center has significantly facilitated the distribution of medical data across service units. With this system, doctors, nurses, midwives, pharmacists, and laboratory analysts can access relevant patient data according to their access rights. This process aligns with Article 5, Paragraph 1 and Paragraph 2 of Minister of Health Regulation No. 24 of 2022, which emphasizes the importance of the completeness, accuracy, and efficiency of medical records in supporting clinical decision-making.

Rogers' Diffusion of Innovations Theory (2003) states that the adoption of new technologies like EMR depends on how users understand the benefits, ease of use, and complexity of the system. Pratama et al. (2018) showed that providing backup power sources, such as generators, can reduce downtime by up to 40% and accelerate the data recording process during emergencies. Another issue faced is the unresponsive interface of the EMR application, with confusing menus and the absence of notifications for unfilled columns. This makes it difficult for healthcare workers to ensure that data is recorded completely and accurately. Shneiderman's Human-Computer Interaction (HCI) Theory (2010) emphasizes the importance of an intuitive user interface that provides immediate feedback to users to ensure system usage efficiency. Rahmawati and Gunawan's (2019) study found that EMR systems with user-friendly interfaces and real-time validation features can improve data recording accuracy by up to 30%.

Based on the findings of this study, as communicated by both the main informants and triangulation informants, the management of Electronic Medical Records (EMR) data at the Kotawaringin Barat District Health Center is carried out through structured stages involving strict verification to ensure the completeness, accuracy, and validity of data. The initial stage starts with recording by doctors, nurses, and laboratory staff. This process aligns with Article 5, Paragraph 1 of Minister of Health Regulation No. 24 of 2022, which stipulates that medical records must be managed completely, accurately, and timely to support healthcare services.
Lorenzi and Riley's Health Information Systems Theory (2000) emphasizes the importance of data verification and validation processes in EMR systems to ensure the accuracy and completeness of medical information. Kusuma et al. (2019) found that the implementation of codification standards like ICD-10 increased reporting efficiency by up to 35% and reduced administrative errors in health insurance claims.BPJS financing claims management at the

Kotawaringin Barat District Health Center, as revealed by both the main informants and triangulation, involves cross-departmental coordination, including IT teams, admin/cashiers, and healthcare workers. This process ensures that each claim can be submitted efficiently, even though it still uses manual processes. The IT team's important role is to ensure the EMR system functions optimally, so that every medical action recorded by doctors or staff is immediately stored and accessible in the cashier menu. Admin or cashiers then verify the data, arrange it according to BPJS regulations, and ensure accuracy before submitting it as a financing claim.

Laudon and Laudon's Information Systems Management Theory (2016) emphasizes that the integration of information technology in healthcare administrative processes can improve data efficiency and accuracy and support better decision-making in financing claims management. Safitri et al. (2018) showed that the use of EMR systems could speed up the claims process by up to 40% compared to manual methods, although they also noted that full implementation requires adequate infrastructure support.The findings of this study reveal that the process of storing Electronic Medical Records (EMR) data is designed to ensure patient information security, availability, and confidentiality. Data is stored centrally on the main server, equipped with an automatic backup system, and additional data backups on secondary servers to anticipate technical disruptions. This procedure aligns with Article 6, Paragraph 1 of Minister of Health Regulation No. 24 of 2022, which emphasizes the importance of protecting patient data through secure and structured storage systems. Strict access control settings, the use of unique user IDs and passwords, and data encryption further strengthen the security of sensitive information.

Shortliffe and Cimino's Health Information Management Theory (2014) explains that secure and structured health data storage systems are crucial in ensuring that medical data can be accessed quickly and accurately by healthcare workers. Kumar et al. (2019) showed that the implementation of backup systems and data encryption can reduce the risk of data loss by up to 60%, supporting the availability of information needed for medical decision-making. The findings of this study indicate that ensuring the quality of Electronic Medical Records (EMR) is an ongoing effort to ensure complete, accurate, accountable, and clinically compliant medical data. The primary focus now is ensuring data entry completeness, which requires a comprehensive approach and cross-team collaboration. The IT team maintains system integration and functionality, medical recorders verify data completeness and validity, while healthcare workers ensure the entry of information according to clinical procedural standards. This reflects the mandate of Article 5, Paragraph 1 of Minister of Health Regulation No. 24 of 2022, which requires medical records to be managed completely, clearly, and accurately to support healthcare services.

Donabedian's (1980) Quality Management Theory in Healthcare emphasizes that healthcare quality encompasses three dimensions: structure, process, and outcomes. In the context of EMR, the structure dimension includes technology infrastructure and policies supporting secure and organized data storage. The process dimension involves accurate data entry according to clinical protocols, while the outcomes dimension focuses on the quality of medical decisions made based on the data.Lau et al. (2016) showed that the implementation of quality audits in EMR systems can increase data accuracy by up to 70% and speed up medical decision-making processes. This audit process involves ongoing system evaluation to monitor potential technical errors and ensure that data entered meets medical standards. The IT team ensures data security and accessibility for authorized parties, while medical recorders verify each data entry step to maintain information integrity. Healthcare workers play a critical role in ensuring that recorded data is relevant to the clinical procedures being performed. This

process aligns with Article 6, Paragraph 1, which emphasizes the importance of securing and structuring patient data.

The initial research findings show that the process of transferring Electronic Medical Records (EMR) content is an essential part of national health data integration. This aligns with Article 6, Paragraph 1 of Minister of Health Regulation No. 24 of 2022, which stresses the importance of protecting and managing patient data securely and systematically. Blobel's (2013) Health Information System Interoperability Theory emphasizes that interoperability allows health information systems to share data across platforms, strengthening data-driven decision-making. Safe and accurate data transfer requires consistent data standards, good access control management, and strong data security mechanisms. Bates et al. (2018) showed that integrated health information systems can improve healthcare service efficiency by up to 30%, speed up health policy responses, and strengthen the national health monitoring system. Pawson et al. (2014) highlighted the importance of auditing and monitoring the data transfer process to ensure data reliability and integrity. Adequate audit systems can help detect and prevent potential data breaches, reinforcing the security and trust in the EMR system. The theories and previous research on health data management emphasize that data completeness and accuracy are critical elements in health information systems. According to Raghupathi & Raghupathi (2014), accurate and complete data supports better decision-making in healthcare services. Campanella et al. (2015) emphasized that accurate patient identification through health information systems can reduce medical errors and increase service efficiency.Hsiao & Hing (2012) found that the implementation of a good EMR system can increase patient data completeness by up to 30%. Improvements in demographic and medical data collection can strengthen the healthcare system, enabling better monitoring of disease trends and patient care

CONCLUSION

The EMR system at Community Health Centers has proven effective in data collection, processing, and storage, contributing to accurate clinical decision-making and reporting. However, challenges remain in areas such as manual data input, limited access, system downtimes, and integration issues. Despite these obstacles, the system provides efficient coordination among medical staff, ensuring accurate updates and maintaining high-quality care.To improve the EMR system, it is recommended to expand predefined categories for occupations and education, enhance system accessibility through mobile devices, and automate financial claims processing. Additionally, addressing system downtimes, implementing a fully functional audit trail, and further integrating laboratory systems will optimize data accuracy and workflow efficiency.

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