

Effectiveness of Electronic Medical Records Implementation in Outpatient Services: A Qualitative Study at Dr. TC Hillers Hospital, Maumere

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ABSTRACT

Electronic Medical Records (EMR) are a key component in the digitalization of healthcare services and are mandated by Minister of Health Regulation No. 24 of 2022. However, their implementation still faces infrastructure and human resource readiness challenges, particularly in outpatient units. This study aims to evaluate the effectiveness of EMR Clinical use at Dr. TC Hillers Regional General Hospital, Maumere. Therefore, Qualitative research was conducted through in-depth interviews and observations of the outpatient service flow. Six informants were purposively selected, including medical records management, operational staff, and patients. The analysis focused on effectiveness based on tasks and functions, goals and benefits, and service plans and programs.

Some of the results obtained were: RME increased internal efficiency, particularly in reducing paper use, accelerating data access, and simplifying administration. Staff assessed the system as simplifying their work. However, effectiveness was hampered by an unstable network and limited formal training. From a patient perspective, the service process, particularly registration, was considered slower due to technical glitches. However, overall, the implementation of RME was considered quite effective, although not optimal for end users. Therefore, network improvements, strengthening human resource training, and patient education are needed to maximize the system's effectiveness.

Keywords: Electronic Medical Records, Effectiveness, Outpatient Care, Digitalization.

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INTRODUCTION

The development of information technology has become a major driver of the transformation of the healthcare system in the era of the Industrial Revolution 4.0. The digitalization of healthcare facilities has led to the emergence of more efficient, accurate, and integrated electronic record-keeping systems. One key component of this transformation is the Electronic Medical Record (EMR), a health data storage system that can be accessed quickly and securely by healthcare professionals, replacing paper-based records, which have been considered inefficient and high-risk for medical errors. EMRs are created and maintained electronically. This system includes patient identity, medical history, supporting examination results, therapies, and other clinical records needed for medical decision-making. (Dachban et al., 2023, p. 237)

In addition to its administrative functions, RME has strong operational objectives, such as improving service speed, documentation accuracy, time efficiency, and ease of clinical reporting. The system also facilitates integration with laboratory results, radiology, electronic prescriptions,

and interprofessional communication. Research by Mathar & Igayanti (2012) shows that RME allows for large-scale data storage, facilitates information retrieval, and reduces the risk of medical errors. These advantages make RME a standard of care in various countries, including Indonesia.

In the context of healthcare effectiveness, the application of RME is highly relevant. Effectiveness itself is defined as the extent to which planned objectives are achieved, both qualitatively and quantitatively. Hidayat, as quoted by Syam, explains that effectiveness is a measure of target attainment. (Syam, 2020, p. 130). Meanwhile, according to Hasibuan, as quoted by Verdianti and Puja, effectiveness is related to the alignment between plans and implementation results. (Verdianti & Puja, 2023, p. 47). Thus, the effectiveness of using RME can be assessed from the success of the system in achieving health service goals, namely: improving quality, accelerating processes, reducing errors, and supporting clinical decision-making.

Effectiveness can also be assessed from various perspectives. According to Latipah et al. (2021), effectiveness in the context of healthcare services encompasses aspects of tasks and functions, program planning, regulatory compliance, and achieving ideal goals. In terms of tasks, the EMR must be able to electronically record patient data, provide automated clinical notifications, securely store data, and support decision-making. In terms of functions, the EMR must facilitate registration, scheduling, clinical documentation, integration of examination results, and communication between healthcare professionals. When these aspects are met, the implementation of the EMR can be considered effective.

In Indonesia, the implementation of EMR is viewed not only as a technological innovation but also as a legal obligation. Minister of Health Regulation No. 24 of 2022 stipulates that all healthcare facilities are required to implement EMR within the specified timeframe. Non-compliance can even result in administrative sanctions, such as written warnings or recommendations for revocation of accreditation. However, implementation in the field presents significant challenges, such as limited infrastructure, gaps in human resource capabilities, incomplete EMR documentation, and network issues that hamper service delivery (Siregar, 2024).

Several studies have shown mixed results regarding the quality and effectiveness of RME implementation. Ikawati reported that RME improves access to information and coordination among medical personnel, but data security and staff training remain challenges (Ikawati, 2024). Affrian et al. found that the quality of RME services in several health facilities is still suboptimal, particularly in the dimensions of reliability and service effectiveness (Affrian et al., 2024). However, disparities in implementation are still evident between service units and regions, so the effectiveness of RME cannot be directly generalized.

A similar situation was found at Dr. TC Hillers Maumere Regional General Hospital. The implementation of EMR at this hospital began in 2022 in the outpatient clinic, emergency department, and inpatient units. Healthcare workers believe EMR has accelerated workloads and reduced the burden of manual documentation. However, several challenges persist, such as an unstable network, high workloads, and incomplete documentation by doctors and nurses due to the high number of patients. These obstacles demonstrate that the effectiveness of EMR depends on organizational readiness, healthcare workforce competency, change management, and infrastructure conditions.

Outpatient services, as the hospital's "gateway," are the units most impacted by the implementation of EMR. Outpatient services are characterized by short wait times, high patient volumes, and the need for rapid coordination. Therefore, the use of EMR in this unit significantly impacts the patient experience and overall service quality. Furthermore, there is limited research specifically assessing the effectiveness of clinical EMR in outpatient services, particularly in the Maumere region. Most studies focus on general evaluations, inpatient services, or community health

centers, leaving a research gap regarding how EMR contributes to the efficiency, accuracy of documentation, and quality of outpatient services.

Based on this identification, an empirical study was needed to assess the effectiveness of the use of Electronic Clinical Medical Records (EMR) in outpatient services at Dr. TC Hillers Maumere Regional Hospital. This study not only assesses the functionality of the EMR from the perspective of healthcare workers but also examines the extent to which the EMR supports tasks, functions, program plans, and the achievement of service objectives.

The novelty of this study lies in its focus on evaluating the effectiveness of clinical RME in outpatient units within a regional hospital context, taking into account the effectiveness, function and purpose of RME, RME implementation, and operational characteristics of hospital services. This study provides an empirical contribution to strengthening digital transformation in advanced healthcare facilities, particularly in under-researched areas.

METHOD

This study employed a qualitative design with a comparative approach to gain an in-depth understanding of the effectiveness of Electronic Medical Records (EMR) use. The qualitative design allowed researchers to capture participants' experiences and perceptions naturally within their work context, while the comparative approach was used to compare various aspects of service effectiveness based on relevant effectiveness theory categories. This approach aimed to identify similarities and differences between variables descriptively (Sugiyono, 2013).

The study was conducted at the BLUD RSUD Dr. TC Hillers Maumere, a major referral hospital in Sikka Regency that has implemented the RME system in various service units. Data collection took place in April 2025, with variable observations conducted once per period without follow-up.

The study population included all healthcare workers and administrative staff directly involved in the use of EMR in outpatient settings. Informants were selected based on specific considerations consistent with the research objectives. Six key informants were involved: the Head of the Medical Records Unit, a hospital management representative, a registration desk officer, an outpatient clinic officer, an outpatient clinic doctor, and two outpatients as additional informants who provided the perspective of service users.

Inclusion criteria for this study included individuals who used or were directly involved in the RME process, communicated well, were conscious, and were willing to participate. Conversely, individuals who did not use RME or had health conditions that hindered the interview process were excluded from the study sample.

The primary variable in this study was the effectiveness of EMR use, defined based on the theory of service effectiveness. EMR effectiveness was analyzed through three main dimensions: effectiveness based on service tasks and functions, effectiveness based on service objectives or benefits, and effectiveness based on service plans or programs. The first dimension assessed the extent to which EMR supported electronic record-keeping, data availability, and decision-making processes. The second dimension evaluated EMR's contribution to speedy information access, coordination among medical personnel, and reduction of recording errors. The third dimension assessed the suitability of services to service standards and the contribution of EMR to patient satisfaction. These three dimensions were measured through in-depth interviews and direct observation, and all variables were analyzed using an ordinal scale based on the characteristics of the qualitative data collected.

Data collection techniques include interviews. The guided, open-ended interview method has proven effective in qualitative data collection because it allows researchers the freedom to explore new topics that emerge during the question-and-answer process (Wilson, 2014). This approach also helps increase data validity, as respondents have the opportunity to share their views and experiences more openly. (Sari et al., 2025). This interview technique aligns with the principles of qualitative research, which focuses on obtaining rich and in-depth information. Thus, interviews are an essential instrument for uncovering aspects that cannot be observed through observation alone. This method allows for exploration of informants' experiences regarding the use of EMR, the barriers encountered, and perceptions of service effectiveness. Direct observations were made of the outpatient service flow and interactions between healthcare workers and the EMR system to record service patterns, timeliness, and technical obstacles that arise during the service process. Documentation, such as interview results, audio recordings, and photos of activities, were used as additional data to strengthen the validity of the findings.

The research instruments included an interview guideline consisting of a list of open-ended questions based on effectiveness indicators, an observation sheet to record work processes and interactions with the RME, and a voice recorder to ensure the accuracy of the interview transcripts. Data analysis consisted of three stages: data reduction, data presentation, and conclusion drawing. According to Sugiyono (2013), data reduction involves selecting, simplifying, and organizing data obtained from interviews to produce more focused data. The reduced data is then presented in narrative form to facilitate researchers' understanding of the relationships between categories. This process is followed by conclusion drawing and verification through re-examination of data consistency, resulting in credible final conclusions that accurately describe the phenomenon.

FINDING AND DISCUSSION

Finding

Electronic Information Systems (EIS). The implementation of an EIS system is a strategic part of efforts to improve service quality, work efficiency, and clinical information management capacity. This contextual overview provides an important basis for understanding how the effectiveness of the EIS system is measured in this study.

Characteristics of Research Informants

This study involved five key informants selected using purposive sampling due to their direct involvement in the RME utilization process in outpatient services. The informants included managerial staff, operational staff, and service users (patients), providing the diverse perspectives necessary to obtain comprehensive data.

The first two informants are healthcare workers with a Diploma in Medical Records who serve as Head of the Medical Records Section, SIM and Public Relations, and Head of the Medical Records Unit, respectively. Both have strategic roles in information system management, documentation policies, and supervision of RME implementation in the hospital. The third informant is an outpatient registration officer with a Diploma in Medical Records who is directly involved in the initial service flow, making their experience crucial for describing the effectiveness of RME.

The next two informants were outpatients, each with a high school diploma and a bachelor's degree. Patient involvement provided a relevant end-user perspective for assessing aspects of service speed, ease of flow, and perceived comfort since the implementation of RME. The presence of patient perspectives also strengthened the evaluation of RME's effectiveness in terms of the goals and benefits of healthcare services.

Overall, this diverse composition of informants allowed the study to capture operational, managerial, and user experiences more comprehensively. Information gathered from these five informants formed the basis for a thematic analysis of the effectiveness of RME use in outpa-tient services at Dr. TC Hillers Maumere Regional Hospital.

Use of RME

Effectiveness of RME Use in Terms of Service Duties and Functions

A thematic analysis of interview results showed that the effectiveness of Electronic Medi-cal Records (EMR) use in outpatient services at Dr. TC Hillers Maumere Regional Hospital was significantly influenced by the implementation of the duties and functions of each healthcare professional involved. This finding demonstrates the consistency of roles, levels of involvement, and responses of informants to the shift in the recording system to a fully digital platform.

Implementation of Main Tasks in the RME System

The implementation of Electronic Medical Records (EMR) has been integrated into the core duties of all healthcare workers. Informant 1 emphasized that his role includes mentoring, moni-toring, and evaluating the implementation of EMR, "my main task... is to mentor, monitor, and then evaluate." Informant 2, as Head of the Medical Records Unit, focuses on preparing digital forms, identifying obstacles, and coordinating with vendors, "I have to prepare the forms... see the obstacles... convey them to the vendor." On the front-line, Informant 3 manages medical record data and patient registration, "my job is to process medical record data and assist with registration." These findings indicate that EMR has become an integral part of the service chain, both at the managerial and operational levels.

Perception of Effectiveness of Task Implementation

All three informants assessed that the implementation of their duties in supporting the RME had been effective. The new system was considered significantly better than the previous period, which still used manual recording. Informant 1 stated, "My main duties are effective... now there is no manual anymore." Similar assessments were given by Informants 2 and 3, who stat-ed, "This is already effective," and "It has been effective." This uniformity of perception indi-cates that the RME has helped improve workflow and increase service efficiency, in line with the concept of effectiveness, which emphasizes the alignment between tasks and their imple-mentation.

Aspects to Pay Attention to when Using RME

Several important aspects that influence the effectiveness of RME include completeness of data entry, compliance with access standards, and infrastructure readiness. Informant 1 emphasized that digital forms must be completed completely, "fill out the form... completely so it can be used." Informant 2 highlighted the obligation to maintain account confidentiality and data accu-racy, "every user must comply... must not give their account to other people." Meanwhile, In-formant 3 emphasized that network stability is crucial for the smooth use of RME, "if the net-work is good, it means that RME will run smoothly." These findings indicate that the success of RME implementation is determined not only by users, but also by technical infrastructure and procedural compliance.

User Training and Capacity

Training for EMR users remains limited and not formally structured. Informant 1 stated that training is available, but Informants 2 and 3 emphasized that in-depth training has not been conducted and still relies on vendor guidance, "there is no specific training... only from the vendor." This situation indicates that human resource capacity building is still needed so that health workers

can optimally utilize the system, in accordance with the theory that knowledge and training influence the ability to adapt to digital technology.

Effectiveness of RME Reviewed from the Aspect of Service Objectives and Benefits

Thematic analysis shows that the implementation of Electronic Medical Records (EMR) at Dr. TC Hillers Maumere Regional General Hospital provides a number of benefits that directly impact service efficiency, documentation processes, and information quality. However, informants also identified several important obstacles as well as ideal conditions that are the hospital's hopes in optimizing the use of EMR. The findings are presented in three main themes: (1) the benefits of EMR for services, (2) technical obstacles and user adaptation, and (3) ideal conditions and levels of effectiveness based on user experience.

Benefits of RME in Improving Efficiency and Service Quality

All informants reported that implementing EMR provided tangible benefits to the service process, particularly in terms of resource savings, accelerated workflow, and improved clinical documentation quality. One of the most significant benefits was reduced paper use. Informant 1 explained, "After implementing this electronic medical record, we save paper... all the data is in the system, so we don't have to go back and forth to the clinic." A similar statement was made by Informant 3, who emphasized that digital storage eliminates the need to manually search for patient files.

Besides paper savings, accelerated service delivery also emerged as a significant benefit. Informant 2 explained that while implementing EMR was initially challenging, over time, the system has streamlined the registration process and accelerated staff response times. He stated, "The benefits we've experienced... are that it's made our service at the counter easier, and patients are served quickly."

Another benefit experienced by officers is the increased speed of data and report presentation. With digital access through a user account, Informant 2 stated that reports are no longer manually generated and can be accessed quickly. "To present the report data, I just open it in the access rights... it's immediately available."

These findings indicate that the primary objectives of implementing RME, work efficiency, reduced administrative burden, and increased access to clinical information have been achieved at the operational level.

Obstacles to RME Implementation and Mechanisms for Handling Them

While the benefits of RME are clear, the research also revealed a number of obstacles that continue to hinder the system's effectiveness. The most prominent obstacle is network issues. Informant 1 stated, "The obstacle we face is the network," while Informant 3 emphasized that network stability is a determining factor in the system's smooth operation. "If it really isn't possible... it depends on the director's policy."

To address network disruptions, staff often employ alternative solutions. Informant 2 explained, "If the network is down, we use a personal hotspot," and if the system is completely unusable, the hospital uses manual medical records SOPs as a contingency mechanism until the system is back up and running. This manual backup procedure ensures service continuity and avoids patient delays.

In addition to network issues, limited user skills in operating the RME also emerged as a barrier. Informant 1 stated that because the system is still relatively new, "many are not yet able or proficient in implementing the RME." To address this, informants emphasized the need for further

training for healthcare workers. Currently, most of the training available still comes from the SIMRS vendor. As Informant 2 stated, "there is no specific training, only from the vendor."

These findings indicate that technical factors and user competency factors are still critical aspects in determining the effectiveness of RME in hospitals.

Ideal Conditions Expected in the Utilization of RME

The three informants described the ideal RME conditions desired by hospitals, namely speed of service, patient satisfaction, and easy access to information. Informant 1 stated that the ideal condition is when "incoming patients are served quickly."

Informant 2 provided a more comprehensive view, that RME should "speed up services, reduce patient waiting times, and provide good and correct reports."

Informant 3 added that RME is expected to be able to eliminate time-consuming manual processes, including searching for physical files, "services can run quickly... there are no time-consuming activities such as searching for medical record files."

The consistency of these views indicates that faster waiting times and operational efficiency are the primary expectations hospitals have for RME systems.

Assessment of the Effectiveness of Using RME Based on Informant Experience

When asked to assess the overall effectiveness of RME use, two informants stated that the system had been effective. Informant 1 stated, "It's been effective," while Informant 2 provided a concrete indicator of reduced wait times: "Previously, the wait times were very long... now they've decreased."

However, Informant 3 assessed that effectiveness had not yet been fully achieved due to the ongoing transition period for changing SIMRS vendors. He stated, "Not yet... but in the future, it will definitely be effective because it will streamline the service process."

This difference indicates that effectiveness evaluation is influenced by the level of user adaptation and the stability of the system used. Overall, RME's effectiveness falls into the "quite effective" category, but still requires improvement, particularly in terms of human resource capacity and system stability.

Overall, interview results show that EMR provides tangible benefits in terms of service efficiency, reduced paper use, increased service speed, and accelerated reporting. The main constraints lie in the network and user skills, while ideal conditions include fast service, minimal wait times, and integrated data access. These findings align with the literature that suggests user education and competency influence their ability to respond to digital system innovations.

Effectiveness of RME Reviewed from the Aspect of Service Plans and Programs

The third theme in this study describes how hospitals plan, implement, and develop Electronic Medical Records (EMR) programs within the framework of improving service quality. The analysis results show four main sub-themes: (1) the initial implementation of EMR, (2) the operational flow of the EMR system, (3) the current EMR program, and (4) long-term development plans.

Benefits of RME for Efficiency and Service Quality

The implementation of RME provides tangible benefits for service efficiency and quality. All informants cited reduced paper use and accelerated workflow as the most significant impacts. Informant 1 explained that all data is now stored digitally, eliminating the need to search for physical files. "We save paper... all the data is in the system." Informant 2 added that RME speeds up counter service and facilitates reporting because data is automatically available through access rights. "Patients are served quickly... reports can be accessed easily." This demonstrates that the primary goals of RME, namely documentation efficiency and accelerated service, have been met.

Technical Challenges and User Adaptation

The main obstacle to utilizing RME is network dependency. Informant 1 stated that "the obstacle we face is the network," while Informant 3 emphasized that smooth service is entirely dependent on connection stability. To overcome disruptions, officers often use personal hotspots or temporarily switch to manual procedures according to SOPs, as Informant 2 explained, "if the network is down, we use a personal hotspot." Furthermore, user skills are also a challenge because the system is still new, so further training is required. Currently, training only comes from the vendor; "there is no specific training... only from the vendor."

Ideal Conditions and Perceptions of Effectiveness

The three informants described the ideal state of RME as a system that speeds up service, reduces waiting times, and facilitates data access. Informant 1 stated that ideally "patients are served quickly," while Informant 2 emphasized the acceleration of service and the availability of accurate reports. Two informants assessed RME as effective, as indicated by reduced waiting times, but Informant 3 assessed that effectiveness was not optimal due to the vendor transition period, "not yet... but in the future it will definitely be effective." Overall, RME was assessed as quite effective, but network improvements and training were still needed for the system to function optimally.

Overall, the research results show that the implementation of EMR in the service planning and program aspects at Dr. TC Hillers Maumere Regional General Hospital has been gradual and integrated across various service types. The program includes mandatory EMR use by all users and the use of the SIMRS (Regional Health Information System) for outpatient, inpatient, and emergency room (ER) care. Obstacles related to feature completeness and system readiness were still encountered, but the hospital continues to make improvements. This finding is consistent with the theory that user education and competency levels influence their ability to adapt to new systems.

Effectiveness of Using RME from a Patient Perspective

Interviews with two patients as comparative informants to validate the findings from health workers showed that patient perceptions of RME tended to differ from those of health workers, particularly regarding speed of service, ease of use, and system effectiveness. Thematic analysis yielded four sub-themes: (1) patient knowledge of RME services, (2) benefits of services for patients, (3) assessment of effectiveness, and (4) experiences related to the registration process.

Patient Knowledge of RME Services

Patients' knowledge of the existence and function of the RME remains limited. Patient 1 stated that the system "has only been around for two months... when it was online before, there was no signal, this app is only around for two months." This indicates that patients are relatively aware of system changes but do not yet fully understand the function and mechanisms of the RME.

Patient 2 explicitly expressed unfamiliarity with the system, saying, "I don't really understand the medical records service," and even expressed discomfort with the change to the app-based service process. He added, "The app takes a bit longer than before... it's faster than now."

This finding confirms that patients do not receive adequate information regarding the implementation of RME, thus affecting their perception and comfort during the service process.

Benefits of RME According to Patients

The benefits of RME for patients varied. Patient 1 assessed that RME negatively impacted the service experience, stating, "The perceived benefits were very detrimental... patients came from morning until evening... the service took too long." This complaint emphasized that patients valued the benefits primarily for the speed of service, not the administrative aspects or paper savings as perceived by staff.

In contrast, Patient 2 gave a more positive assessment, "the benefits... seem to be a little bit better, speeding up access to the clinic and getting medication."

This difference shows that the perception of benefits is greatly influenced by personal experience, type of visit, and conditions at the time of service.

Patient Assessment of the Effectiveness of RME Services

Both patients assessed the EMR service as ineffective. Patient 1 asserted that the service was "very ineffective, it takes so long to use the app, waiting up to seven or eight minutes." Complaints about waiting times indicate that patients primarily assess effectiveness based on operational speed. Patient 2 supported this finding, saying, "I don't think it's effective yet."

These findings indicate a significant gap between staff and patient perceptions. While staff perceived RME to speed up administrative work, patients did not perceive this acceleration in direct service.

The Influence of RME on the Registration Process According to Patients

Triangulation from the patient perspective indicated that the implementation of RME was not yet fully effective. Both patients perceived the registration process as slower, with Patient 1 stating, "This service slows down the service process," and Patient 2 attributing the delay to the network or high patient volume, stating, "It takes a while... maybe because of the network or the backlog." Patients' low knowledge of RME and varying service experiences contributed to inconsistent perceptions of benefits. Overall, both patients perceived the effectiveness of RME as less than optimal due to network constraints and service burden. The differences in perceptions between staff and patients suggest that system effectiveness is determined not only by internal performance but also by end-user experience, in line with the view that level of understanding influences response to digital innovation.

The differing perspectives between staff and patients reinforce the principle that system effectiveness is determined not only by internal performance but also by the end-user experience. This aligns with the view that user education and understanding influence their ability to assess and respond to service system innovations.

Discussion

This discussion integrates research findings with theories of healthcare effectiveness and literature on Electronic Medical Records (EMR) implementation. The analysis focuses on organizational readiness, task implementation effectiveness, system benefits and barriers, planning appropriateness, and patient perspectives as service recipients.

Organizational Readiness in Implementing RME

Organizational readiness emerged as a fundamental factor for the success of service digitalization. Dr. TC Hillers Regional General Hospital in Maumere demonstrated structural readiness through the gradual adoption of outpatient care in 2023 and inpatient care in 2024, in line with a staged adoption approach to minimize the risk of failure. The availability of healthcare workers with medical records competency also strengthened the hospital's ability to manage change. However, findings regarding disparities in information regarding implementation timelines indicate that internal communication has not been optimal. This suggests that organizational readiness is not uniform across all levels, thus hampering implementation effectiveness due to a lack of coordination.

EMR Effectiveness Based on Service Duties and Functions

EMR implementation is effective when the roles of healthcare workers are clear, consistent, and aligned with system requirements. Informants demonstrated role clarity through their performance in assisting, monitoring, data processing, and patient registration, adapting to digital processes. Accuracy in data entry, compliance with account access rules, and awareness of maintaining information confidentiality have been shown to strengthen the system's effectiveness. However, limited formal training and reliance on SIMRS vendors indicate that user capacity still needs to be improved. The literature emphasizes that ongoing training is a crucial prerequisite for successful health technology, making this weakness an area requiring special attention.

EMR Effectiveness Based on Service Objectives and Benefits

EMR has been shown to provide operational benefits such as paper savings, accelerated registration processes, easier data access, and faster report presentation. These findings indicate that the primary goals of digitization—documentation efficiency and increased productivity—have been achieved. However, several obstacles still limit effectiveness, particularly network disruptions and variations in user skills. Reliance on personal hotspots and the use of manual backup procedures indicate that the digital infrastructure does not yet fully support the system's operationalization. Furthermore, differing perceptions between staff and patients indicate that improvements in internal efficiency do not always translate directly into patient experiences as external users of services.

EMR Effectiveness Based on Planning and Service Programs

Hospital planning demonstrates a clear direction in expanding the use of EMR throughout the service flow. The integration of registration and inpatient care services reflects the alignment between process design and technology implementation. Efforts to develop features, accelerate services, and provide management data further demonstrate a commitment to continuous improvement. However, the effectiveness of the digital flow is still influenced by network stability and user consistency in data input. This confirms that planning success is determined not only by policy, but also by infrastructure readiness and user technical capabilities.

Patient Perspectives on the Effectiveness of RME

Unlike healthcare professionals, patients perceived the effectiveness of EMR as suboptimal, particularly during the registration process, which they perceived as slower due to network constraints and high service burden. Patients' low knowledge of EMR also influenced their perceptions of the system's usefulness. Some patients found it helpful, while others perceived a decrease in service speed. This difference in perception underscores that technology effectiveness depends not only on internal performance but also on the quality of the end-user experience. These findings

align with the principles of patient-centered care , which prioritizes patient ex-perience as a key indicator of the success of digital interventions.

CONCLUSIONS

This study shows that the implementation of Electronic Medical Records (EMR) at Dr. TC Hillers Maumere Regional General Hospital has improved data integration and administra-tive efficiency, particularly in the registration process, information storage, and report presenta-tion. Staff assessed the system as being quite effective because it supported task execution, ac-celerated work processes, and reduced the burden of manual documentation. However, this ef-fectiveness is still limited by a lack of formal training and vendor dependence.

While internal benefits are quite visible, patient perceptions indicate that the speed and convenience of services have not fully improved. Network disruptions, longer wait times, and a lack of familiarity with digital systems create a gap between administrative effectiveness and user experience.

In terms of plans and programs, the hospital has a clear development direction, including feature enhancements, increased service integration, and data utilization for managerial deci-sion-making.

Overall, the implementation of RME is categorized as quite effective, but requires strengthening of human resource capacity, improving network infrastructure, and patient edu-cation so that digital transformation can result in more equitable improvements in service quality for all users.

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