

Analysis of Obstacles in the Implementation of EMR to the Efficiency of Registration Services at Community Health Center X

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Abstract. Electronic medical records or abbreviated as EMR as an innovation in the development of manual medical records must be implemented in Indonesia starting December 31, 2023 in every unit of health care facilities. *Community Health Center X* is one of the health facilities in Bandung Regency and in its services has 100% used electronic medical records starting from January 2024 as an effort to support services, the purpose of this study is to find out the extent of the application of electronic medical records to the effectiveness and efficiency of their use to support services, especially in the registration section as one of the first service units in providing services to patient. This study uses a descriptive qualitative method based on the researcher's perspective during the research. In the use of electronic medical records, problems were found that occurred due to obstacles and obstacles faced, especially in the registration service section, obstacles encountered namely improvements to the application system, problems on the network, errors in the programming process, electronic devices that experienced buffering, power outages while in the service process and not optimal backup equipment when a power outage occurred, and the patient fingerprint feature cannot be used as a support in services. However, the existence of electronic medical records is also very helpful for officers in carrying out services to be more efficient and fast so that the accumulation of patients in the registration section is rare.

Keywords: *Efficiency; Obstacles; Electronic Medical Records; Community Health Center*

Introduction

Electronic medical records, which are abbreviated as RME, are a form of technological will, RME utilizes information technology as a medium for recording patient information. According to the PERMENKES of the Republic of Indonesia Number 24 of 2022 concerning medical records, advances in digital technology lead to the digitization of health services, so that medical records are electronic and comply with the principles of security, data and information confidentiality. Currently, there has been an increase in information technology that has caused all fields to face comprehensive and sustainable changes (Fatima, 2023), in this case, including health centers.

Hospitals as one of the health facilities aim to improve public health with quality services (Wirajaya, 2019) in this case including health centers as one of the facilities in health services. Because patients have the freedom to determine the place where they get health services and through patient satisfaction, it can be a determining indicator of the quality of services that have been provided by hospitals (Sondakh et al., 2023).

In the implementation of RME, it will certainly be faced with various common obstacles encountered, but in the use of technology in public services, it is hoped that it can increase the speed, accessibility, and quality of services provided to the community, as well as facilitate the process of administration and data management. The development of digital technology has had a major impact on various sectors, including public services. Technology provides faster, more efficient, and transparent solutions for the public in accessing various government services (DiskomInfo Mukomuko Regency, 2024). Community Health Center as one of the service provider facilities must be able to meet the expectations of service users, this is in line with the statement "the existence of electronic medical records is a solution for hospitals in terms of improving the efficiency and quality of hospital services" (Ikawati, 2024).

In Rismawati and Erwin Purwaningsih's 2022 research, it was explained that the implementation of electronic medical records at the Karang Asam Samarinda Health Center was based on the man, machine, method, and money factors. It was concluded that based on the man factor, namely not all officers are ready to switch to electronic medical records, there are no information technology officers, and no medical record officers have RMIK education. Machine factors, namely slow internet networks, computers that do not meet the specifications of electronic medical records, and servers that sometimes have problems. The method factor is that there is no standard operating procedure for electronic medical records. And the money factor, namely budget limitations for the use of electronic medical record systems.

Rahayu Health Center is a health center where researchers conduct case studies related to the obstacles that occur in the implementation of electronic medical records,

this health center has been using electronic medical records since around 2022 and is still assisted by manual medical records, starting in January 2024 the use of electronic medical records has been carried out 100%. In its application and implementation, it provides a lot of benefits and good changes, especially for services in the registration section compared to the use of manual medical records which have more shortcomings and obstacles faced.

Basic Theory

Obstacles

In terms of language, the word obstacle comes from the word obstacle In the Great Dictionary of the Indonesian Language (KBBI) obstacle is an obstacle or obstacle. So it can be concluded that obstacles are everything that anchors or obstacles that occur while doing a job or activity to be able to achieve a goal. In terms of language, the word inhibition comes from the word inhibit. Barriers tend to be negative in nature which can lead to distractions

RME

Electronic medical records, abbreviated as RME, are medical records that utilize information technology by prioritizing information security and confidentiality. Regulation of the Minister of Health (Permenkes) Number 24 of 2022 explains that electronic medical records must meet three principles of data and information security, namely:

1. Principle of confidentiality
The principle of confidentiality aims to ensure that data and information are kept from access by unauthorized parties.
2. Principles of integrity
The integrity principle aims to maintain the accuracy of data and information, so that only people with access rights can make changes to the data.
3. Availability principle
The principle of availability gives priority to the availability of information when connected with related parties. Medical records are a communication tool that must always be available appropriately and be able to display data that has been stored before.

Efficiency

In the Great Dictionary of the Indonesian Language, Efficiency is the precision of the way (effort/work) in living something without wasting money and time properly and

precisely. In other words, using and utilizing goods and services properly and appropriately to produce something optimal. Efficiency is a term used to measure the ability to use existing tools or facilities, the closer it is to ideal and according to expectations, the more efficient it can be said.

Methodology

In the research carried out by the researcher uses a qualitative method, which is a method based on the perspective of the researcher in interpreting and understanding an interaction, event, and behavior of the research subject in a certain situation, does not use statistics and the data obtained is not in the form of numbers. According to (Mulyana, 2008), qualitative research is described as research that uses scientific methods to express a phenomenon by describing data and facts through words thoroughly to the research subject.

In this study, the researcher uses a type of descriptive qualitative research because the researcher approaches a specific problem or situation. The data collection techniques used are in the form of observation and interviews to support information in the research. Meanwhile, for sampling, the researcher uses the purpose sampling technique, which is a sampling technique using certain considerations, for example choosing respondents who are in accordance with the criteria being researched.

Results and Discussion

The Implementation of RME on the Efficiency of Registration Services at Community Health Center X

The researcher/s must present their findings in this part. In most cases, the Results section merely presents the findings, with no explanation or critical interpretation. This part is also written in the past tense. Make sure that each table and figure has its labeling and numbering. Tables have captions above them, and figures have captions beneath them.

Based on research, Community Health Center X has been using RME since around 2022 but is not 100% and assisted by manual medical records, the use of RME is used in stages starting from registration services, dental polyclinics, general clinics, pediatric clinics, obstetrics and family planning clinics, DOTS clinics, infectious clinics and laboratory support services. The use of 100% RME without the help of manual medical records will be carried out starting from January 2024.

With the implementation of RME, according to one of the registration officers, it has greatly helped officers in terms of the effectiveness and efficiency of service to patients, the effectiveness and efficiency in question include:

1. Makes it easier to find the patient's identity and documents as needed compared to manual medical records
2. Patient data and information are more secure
3. Minimize document printing budget
4. Service becomes faster and easier
5. Minimizing errors in patient input
6. Saves storage space

The RME application used is legal and connected to DISKOMINFO Bandung Regency, this application is managed by DISKOMINFO and the Bandung Regency Health Office. To maintain this application, IT always performs regular system maintenance. Since the beginning of the creation of this application, it has been held by the IT of the Health Office, but in February 2025 it was taken over by IT DISKOMINFO, and starting in April 2025 the application was taken over by private IT as the person in charge.

In its implementation, this application uses an authentication system in the form of a username and password to access the system, this is done with the aim of protecting data and medical record information from external parties who try to enter and misuse information, this is done as a form of prioritizing information security and confidentiality to ensure that data can only be accessed by parties who have authorization rights so that data does not fall into the hands of which is wrong. In its use, this application also implements an electronic signature system in the form of pins for officers, both nurses, midwives, doctors, registrants, and other paramedical officers as a form of responsibility in providing services and enforcing diagnoses provided to patients

Obstacles in the Implementation of RME Facing the Efficiency of Registration Services at Community Health Center X

From the results of this application's research, it can be said that it meets medical record standards even though there are still often obstacles in its implementation, the obstacles in question include:

1. Application system improvements
2. Network trouble
3. Errors in the programming process
4. Buffered electronic devices
5. Occurrence of power outages
6. Not optimal for electrical backup equipment when there is a power outage
7. Fingerprint feature not yet connected

During the research conducted in April 2025, the most common obstacles encountered were improvements in application systems and errors in the programming process. During the study, there was an error that occurred from April 7 to 17, 2025 due to an improvement in the application system due to the transfer of servers to private servers which made registration services hampered until the administration of drugs so that there was a buildup of patients.

Obstacles that occur usually occur around 08.00 to 12.00 which is a busy hour and crowded with patients, as for problems that make the system experience errors and cannot be used, it is usually constrained when the application system is being repaired or maintained, this greatly affects the efficiency of services, especially registration services. As happened on April 7 to 17, 2025, due to the improvement of the application system, services were forced to be carried out manually because the application could not be used at all. Sometimes in conditions like this for patients who will make a referral, either new or extended, cannot be processed directly, the patient has to wait for the application to be used again and it is not uncommon for patients to come back to take the referral at a later date.

According to one of the officers, the problem of trouble on the internet network occurs due to unstable internet signals caused by internal factors such as cable routers and external factors, namely the weather. This obstacle is an obstacle that can be said to be rare because the X health center has several internet networks that can be used in the service process. The errors that often occur in the registration process are errors in the programming process such as the integration of patient identities where when registering patient A but the status is integrated with patient B, especially in registering new patients, this usually occurs when the application is under repair which causes errors in the programming process where one officer and another officer carry out the submission process at the same time.

The use of electronic devices that experience buffering either because of the long hang so that they cannot process data due to the connection factor or RAM factor is also a rare thing because periodically the X Health Center always checks and maintains the electronic devices used. Problems that often occur and become obstacles to the efficiency of registration services are also one of them, namely when there is a power outage during service hours. The occurrence of a power outage makes the entire system shut down and cannot be used at all, the occurrence of a power outage makes the services carried out hampered, therefore sufficient backup equipment is needed in the event of a power outage so that the service process can continue to run properly.

Through an interview with one of the registration officers, it was known that this health center already had a backup tool in the event of a power outage, namely in the form of a generator, but the generator available was only one and could not backup all the electricity needs needed. In this case, officers must be wiser to turn on existing tools,

and officers must be able to sort and be wise in turning on which tools or devices will be used and not used too much when there is a power outage until the electricity comes back on.

For electronic signatures, this health center has implemented an online signature in the form of pins for officers, both nurses, doctors, midwives, registration officers and other paramedics, but for fingerprints or patient fingerprints cannot be used because the feature cannot be connected to the fingerprint device, and there are still limitations in the availability of fingerprint tools which is one of the mandatory procedures in registration services, especially for BPJS patients.

Efforts to Overcome Obstacles in the Implementation of RME in the Face of Efficiency of Registration Services at Community Health Center X

To deal with obstacles that often occur, officers always make efforts that can be done to overcome existing problems, both internally and externally. Internally, officers at Community Health Center X always hold meetings to discuss obstacles that occur in service to patients in order to get solutions and what possible ways can be done to handle them, externally the officers will always consult with IT and the Health Office and report problems that occur in the service process to ask for advice in overcoming the problems that arise so that improvements can be made immediately.

In an effort to overcome the obstacles that occur, Community Health Center X always evaluates its use, this evaluation must always be carried out to ensure that the use of this application always runs smoothly and avoid obstacles that often arise, with the holding of evaluations, it is hoped that it will be able to overcome various problems that occur in order to improve the performance of all officers, especially in this case officers in the registration section as the first service unit in providing services to patients, so that it can improve the quality of service and can realize services that are in accordance with the expectations of service users.

The researcher conducts an interview with one of the registration officers regarding the efforts made if there is an error caused by the repair of the application system and there is a programming error, then the officer will coordinate with the IT party responsible for the application and report the problem to find a solution in handling it, for example by changing the server or by performing services manually first. The switch from electronic services to manual services will make service time faster, but work time for officers will be inefficient because it will take time in the input process when the system returns to normal. Officers will work 2x as usual.

When the system is constrained by the network, the officer will be quick to replace the problematic network connection to a better network, for example by tethering with a personal device or replacing the wifi connection with another wifi connection. What will

be done when the device is buffered, the officer will replace the device that is experiencing a hangover or interference with a better device for a while while waiting for the buffered device to be repaired to avoid the accumulation of patients, for example by replacing the computer with a laptop or using a personal mobile device to avoid the accumulation of patients.

Other actions that will be taken in the event of a power outage are by turning off some of the tools or devices that are not really used during the service process such as turning off the air conditioner, turning off the sterilizer, turning off unused lab equipment, turning off some computers, etc., so that the service can continue to run because the available generator cannot backup all the electricity needs needed during a power outage. And for fingerprint problems, IT is still trying to develop an application system so that it can be connected immediately and can immediately use this feature. As for the tool or fingerprint machine, the health center has submitted a request for the purchase of the tool to support the service standards provided.

As previously explained, there has been an application system disruption from April 7 to April 17, 2025 due to the transfer of IT servers of DISKOMINFO and the Health Office to private IT, requiring each health center to change its server to a private server. To overcome this on April 18, the health center immediately tried to change the server to the private party for the sake of the smooth application system, after the change of the application server could be used smoothly.

Benefits of Implementing RME in the Face of Efficiency of Registration Services at Community Health Center X

The benefits felt by the existence of RME are felt to be very significantly different compared to manual medical records which have more limitations and shortcomings, these benefits are not only felt by the officer but also felt by the patient as a service user. Before the existence of electronic medical records, the service time provided to patients was felt to be quite long, with electronic medical records, all services from registration services to drug services were thoroughly connected and it would also be easier to track how far the patient's examination had been carried out.

The benefits felt include:

1. Services become more efficient because the waiting time for services is not too long when compared to manual medical records which take quite a long time due to writing, writing, searching, and distributing medical records to the destination poly.
2. The waiting time for patient registration services becomes shorter and faster after the implementation of electronic medical records, thus preventing the possibility of piling up patients in the registration section. Before the existence of electronic medical records, the registration section was one of the parts that often received

highlights and complaints because of the frequent accumulation of patients in the manual registration process, by using electronic medical records after registering the patient would not be too long to wait for a call at the intended poly without having to wait for the distribution of medical record status.

3. The implementation of RME can minimize the occurrence of lost medical record files, because the storage of patients' medical record files is in safe and secure electronic storage. This is different when using manual medical records where files are stored in a medical record storage room that allows anyone to open and misuse patient data and information.
4. Minimizes budget and saves storage space, because file storage is in electronic storage and not in the form of physical documents.

Conclusion

Based on the results of the research conducted by the researcher on "Analysis of Obstacles in the Implementation of RME to the Efficiency of Registration Services at Community Health Center X" whose application has run quite well as security and maintenance carried out regularly by IT and can provide significant benefits, especially in the registration section in providing services to patients to be more efficient, the waiting time becomes shorter, minimize the loss of medical record files, minimize the accumulation of patients, etc.

In its application, it provides a lot of benefits, but this is not avoided from obstacles that are often found and become obstacles, these obstacles are: system errors and cannot be used due to application system improvements, network troubles, errors in the programming process, electronic devices that experience buffering, power outages during crowded patients and during peak hours that make services hampered, as well as the lack of optimal backup equipment during a power outage because the existing generator cannot meet the required power needs, and fingerprint problems that cannot be done because the feature cannot be connected to the fingerprint tool but the IT team is trying so that the feature can be used immediately because fingerprint is one of the mandatory procedures in registration services, especially for BPJS patients. These things can affect the level of effectiveness and efficiency in the officer's service to patients.

The problems faced above have certainly been improved and the best solution to deal with them has been sought, although some efforts have been made, but these obstacles still often occur. With these obstacles, it is hoped that it can be used as an evaluation material as a form of improvement for the parties involved for the smooth provision of services in order to improve services even better in order to create excellent service for service users. And for the next research, it is hoped that it can be

done even better research so that the information presented is much more complete, and the journal used is the latest journal so as not to cause doubts for future research.

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