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Analysis of Inhibiting Factors Implementation of Electronic Medical Records in East Pamulang Community Health Center

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ABSTRACT

Patient medical records in Indonesia are starting to transform into electronic-based medical records. Electronic Medical Records (EMR) are medical records created using an electronic system. It is an electronic repository of information about a patient's health status and health services throughout patient life. The impact if health services have not implemented EMR is that it could hamper patient health services. This research aims to identify factors inhibiting the implementation of EMR at the East Pamulang Community Health Center (Puskesmas). The research method used is descriptive with a qualitative approach. The research subject population was medical records officer and chief administrative officer, while the object population was the medical records, registration, clinics, laboratory, and pharmacy room. The results of the research identified several factors inhibiting the implementation of EMR, such as inadequate infrastructure, no officers with a background in medical records, and still using paper-based manual medical records. The conclusion of this research is the discovery of several factors inhibiting the implementation of EMR, human resource factors where it doesn't yet have an officer with an educational background in medical records, the number of computers is still limited which supporting EMR in each service unit, and the electronic-based medical record applications are still not used comprehensively in the service units of the Puskesmas. Suggestions from the results of this research are that Puskesmas immediately recruits officers who have an educational background in Medical Records, increases the number of computer devices that support the implementation of EMR, and immediately implements electronic-based medical records.

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1. INTRODUCTION

Medical records are files that contain notes and documents regarding patient identity, examinations, treatment, procedures and other services provided to patients at health service facilities [1]. Electronic Medical Records (EMR) are medical records created using an electronic system intended for the maintenance of medical records [2]. EMR are medical data stored in digital form and can be accessed via certain networks or systems, and include all documents, notes, or other information related to health services. Community Health Center, hereinafter referred to as Puskesmas, is a health service facility that carries out public health

efforts and first-level individual health efforts, by prioritizing promotive and preventive efforts, to achieve the highest level of public health in its working area [3]. The development of digital technology in society has resulted in the transformation of the digitalization of health services so that medical records need to be held electronically with the principles of security and confidentiality of data and information. With the publication of Regulation of the Minister of Health of the Republic of Indonesia Number 24, year 2022 concerning Medical Records, patient medical records started to transition to an electronic format. This policy mandates the use of an electronic patient medical history recording system in all Indonesian healthcare facilities. Creating an EMR system needs to consider several important things, such as the very large cost of creating or buying an EMR application, careful planning, coordination with all health service staff, and focusing on the needs of service users. The development of digital technology in society has resulted in the transformation of the digitalization of health services so that medical records need to be held electronically with the principles of security and confidentiality of data and information.

However, there are still many health services in Indonesia that still use manual medical records and have not implemented EMR. Several inhibiting factors prevent health services in Indonesia from implementing EMR, such as financial readiness, human resource readiness, and infrastructure readiness. The impact if health services have not implemented EMR is that it could hamper patient health services and they could be subject to administrative sanctions in the form of written warnings or recommendations for revocation or withdrawal of accreditation status by national accreditation institutions and the government, in this case, the Ministry of Health of the Republic of Indonesia. This research aims to determine the factors inhibiting the implementation of EMR in Puskesmas, especially in terms of human resources, work procedures, and the availability of information technology infrastructure.

The most appropriate solution as a suggestion solution for this problem is increasing the quantity and quality of human resources operating electronic medical records, adding and improving infrastructure supporting EMR, and implementing EMR as soon as possible in Puskesmas in Indonesia. This research has never been carried out before at Puskesmas, so it is hoped that it can provide an initial picture showing the unpreparedness of Puskesmas in Indonesia and the factors that cause it so that Puskesmas as the government's leading spearhead can improve and increase the quality of health services to communities throughout Indonesia through electronic medical records.

2. LITERATURE REVIEW

Community Health Center, hereinafter referred to as Puskesmas, is a health service facility that carries out public health efforts and first-level individual health efforts, by prioritizing promotive and preventive efforts, to achieve the highest level of public health in its working area [3]. A community health center is a functional health organization which is a community health development center which also fosters community participation in addition to providing comprehensive and integrated services to the community in its working area in the form of main activities. Puskesmas has the authority and responsibility for maintaining public health in its work area without neglecting the quality of service to individuals. Another duties and obligations of the Puskesmas is to carry out medical record activities, in this case Electronic Medical Records.

Electronic medical records are patient medical records that are created, accessed, managed, and stored in electronic or digital format which include patient medical information such as patient identity, medical history, physical examination results, laboratory test results, diagnosis, medical procedures, and nursing notes and all its accessories [2]. The Centers for Medicare and Medicaid Services (CMS) defines an electronic medical record as a patient's electronic medical record that is kept up to date by a healthcare provider and contains clinical information pertinent to the patient's care under a specific agency. This information includes demographics, progress notes, problems, medications, vital signs, past medication history, vaccination history, laboratory results, and radiology reports. [4].

Rina Yulida, Lutfan Lazuardi, Ariani Arista Putri Pertiwi in year 2021, with the research title "Challenges of Implementing Electronic Medical Records Based on Human Resource Dimensions" at RSGM Prof. Soedomo Yogyakarta. The research results show that the challenges of implementing EMR based on the human resource dimension include user resistance in implementing EMR as well as a lack of knowledge and experience in using EMR. To overcome the obstacles of this challenge, it is necessary to carry out comprehensive outreach and training for EMR users and provide assistance to users in operating the EMR system [5]. From this research, it can be seen that there are similarities in the factors inhibiting the use of

EMR, namely in terms of human resources in operating EMR, the difference is in the form of the place where the research is carried out, namely at RSGM Prof. Soedomo Yogyakarta hospital instead Puskesmas.

Lola Septiana in year 2021, with the research title "Literature Study: Barriers to Implementing Electronic Medical Records" in Hospitals. Twenty pieces of literature were acquired from the 745 journals that were found, and these were incorporated into the final study. Based on the analysis's findings, four factors—human resources (HR), laws and regulations, infrastructure, and costs—are known to be barriers to the use of electronic medical records in hospitals. Hospitals wishing to use electronic medical records must prepare for potential roadblocks before implementing the system. [6].

Muh Amin, Winny Setyonugroho, Nur Hidayah in year 2021, with the research title "Implementation of Electronic Medical Records: A Qualitative Study", this research provides an understanding of the implementation of EMR. In implementing EMR, factors are needed that contribute to the success of EMR implementation, such as support from human resources, hardware, finance, leadership, training, and technical support. Nevertheless, there are additional challenges in implementing EMR, including computer incompetence, imperfect system design, incompatibility with other systems, and power outages. The security or confidentiality of the data in the EMR system must be taken into consideration when implementing the EMR. Nonetheless, all of this has advantages such as more comprehensive medical record content, effective business and communication, strategic advantages, and simple information access. [7].

Wahjuni, Edi Sari, Nuzulia Kumala in year 2017, with the research title "Judicial Review of Electronic Medical Records" at Jember Lung Hospital demonstrate that funding is the primary barrier to the widespread adoption of electronic medical records. The main factors that become obstacles at the Jember Lung Hospital are the inconvenience of filling out the application, doubts about the benefits, and doubts about the legality of electronic medical records [8].

Delfina Darianti, Vina Ervina Destiana Dewi, Leni Herfiyanti in year 2021, with the research title "Implementation of Digitalization of Medical Records in Supporting the Implementation of Electronic Medical Records" at Cicendo Hospital. 58,402 medical records have been digitized between September 2020 and May 2021, derived from roughly 220,221 active medical records from 2015 to June 16 2021 at 14.27 WIB. PMN Cicendo Eye Hospital is implementing the digitization of medical records, and supporting variables include human resources, prices, equipment, processes, and materials. Aside from that, a number of challenges persisted during its implementation, including a deficiency of personnel, a lack of established protocols, a lack of a regular maintenance plan for scanning equipment, and a significant quantity of damaged medical record forms.[9].

3. METHOD

The research method used is descriptive with a qualitative approach. The research was carried out at the East Pamulang Community Health Center starting from April to May 2023. The research subject population was one medical records officer and one chief administrative officer, while the object population was the medical records installation, registration room, four clinic rooms, laboratory room, and pharmacy room. The research sample was one medical records officer and one chief administrative officer. The sampling technique used is a non-random sampling technique (total sampling). The first data collection technique used was an interview technique with research respondents, namely one medical records officer and one chief administrative officer of the puskesmas. Observation techniques by making detailed observations of the conditions and implementation of electronic medical records in community health centers, and documentation techniques by searching for literature that is appropriate to the research topic. Data processing begins when the results of interviews and observations and checklist sheets are filled in, and collected and data processing procedures are carried out. The data in this research is analyzed descriptively, namely describing the results of observations grouped according to research objectives to be compared with theory, so that conclusions can be drawn.

4. RESULTS AND DISCUSSION

From the research results related to the factors inhibiting the implementation of Electronic Medical Records at the East Pamulang Community Health Center.

4.1 Man Factor

Researchers know that Puskesmas does not yet have a medical records officer, so the counter staff take turns being medical records officers while guarding the counter. There are 2 counter officers at the Puskesmas. Apart from that, researchers also found that the officers did not have special skills in the field of medical records, there was no training related to electronic medical records, and the officers did not have an educational background majoring in the medical records. Based on the results of interviews with counter officers who are also medical records officers at the East Pamulang Puskesmas, it was found that there were no medical records officers at the East Pamulang Health Center. The counter clerk who takes turns being a medical records officer at the East Pamulang Community Health Center also does not have an educational background majoring in medical records so he has no experience in the field of medical records. The counter staff also knew little about electronic medical records and had never participated in an electronic medical record training program so the counter staff did not have much experience related to electronic medical records. It is known from Minister of Health Regulation number 55 of 2013 concerning the Implementation of Medical Recorder Work that in a health service facility including a community health center or in a medical records room the person on duty should have a background in medical records education because the medical record file is confidential and contains the patient's identity, history of illness, and other services. provided by health facilities. Apart from that, medical records officers must also have a Registration Certificate (STR), which is written evidence given by the government to health workers who have a competency certificate. and are also required to have a Work Permit (SIK) to be able to do their work. SIK for medical record officers is given to medical record officers who already have a Medical Recorder STR. Human resources in this case, namely medical record officers, will have a very important role in the implementation of medical record services at community health centers. Human resources that are sufficient in number and quality will improve the quality of service, especially a medical recorder who understands the use of electronic medical record applications.

4.2 Method Factor

Currently it is known that there is an obligation for health services to implement electronic medical records in accordance with the regulations of Minister of Health Number 24 of 2022. However, from observations it is known that the Puskesmas has not yet used Electronic Medical Records. Based on the results of interviews and observations with the counter staff who are also medical records officers at the Puskesmas, it was found that the Puskesmas still uses manual (paper-based) medical records. This is what causes there to be method factors that influence the non-implementation of Electronic Medical Records. There are still many Puskesmas in the South Tangerang area that have not yet switched to Electronic Medical Records, which will affect the quality of medical record services to Puskesmas patients. The use of paper-based manual medical records has many risks, such as easy loss and scatter of medical record files, waiting times for collecting and delivering medical records, and retention activities for inactive medical records. All of these problems will no longer apply if the Puskesmas uses electronic medical records.

4.3 Machine Factor

The machine factor is one measure of success in implementing electronic medical records. From the results of interviews, informants said that computer facilities were adequate, but from observations it was found that the Puskesmas did not have adequate computer facilities, which was one of the obstacles to the implementation of EMR. Researchers found that general practitioner clinics, maternal child health clinics, and dental clinics only had 1 computer unit. Researchers also found that there were 2 computers in the registration room. Meanwhile, tuberculosis clinics, laboratories, pharmacies and emergency rooms do not have computers. Even in the medical records room there were no computers or laptops found. After observing each computer in the service unit, it was found that the Puskesmas did not yet have an electronic medical record system application. From the results of observations, researchers also did not see supporting equipment such as electric generators to help in the event of a power outage. Researchers also saw that the medical record room at the Puskesmas was too narrow. It is clear that the existing infrastructure is not sufficient to implement EMR in Puskesmas.

5. CONCLUSION

It can be concluded that there are several factors that influence the implementation of electronic medical records at the East Pamulang Community Health Center based on 3M management theory, namely the Man factor, Method factor and Machine factor.

- 5.1 There is a human factor which is an obstacle to the implementation of Electronic Medical Records in Puskesmas, namely the absence of medical records officers and the absence of officers with an educational background in medical records, so they only have little experience in the field of medical records, and have never participated in a recording training program. electronic medical records so that officers do not have much experience related to electronic medical records.
- 5.2 There is a method factor that is an obstacle to the implementation of Electronic Medical Records at the Puskesmas. From the results of observations it was found that the Puskesmas still uses manual (paper-based) medical record methods and does not use electronic medical record methods.
- 5.3 There are machine factors which hinder the implementation of Electronic Medical Records in Puskesmas, such as the lack of computers and/or laptops, the narrow condition of the medical record room, and the absence of supporting equipment such as electric generators which can help when there is a power outage in the Puskesmas.

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Gama Bagus Kuntoadi    obtained a bachelor's degree in dentistry from Professor Moestopo University, Jakarta, Indonesia, in 2003 and a master's degree in Hospital Administration from Respati Indonesia University, Jakarta, Indonesia, in 2009. Currently serves as a lecturer at the College of Health Science Widya Dharma Husada Health Tangerang, Indonesia. His research interests include dentistry, medical records, anatomy and physiology, codification, and medical terminology. He has published several textbooks on Anatomy, Physiology and Medical Terminology, pathophysiology reference books, and articles in National SINTA indexed journals, including MedicordHif, EDU RMIK, and INOHIM. He can be contacted at email: gamabaguskuntoadi@wdh.ac.id.

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