Electronic Medical Record: Challenges in Terms of Management Elements Related to The Implementation of Inpatient Electronic Medical Records

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Abstract— Patient medical records began to switch to an electronic basis with the issuance of Minister of Health Regulation Number 24 of 2022 concerning Medical Records. This policy regulates health service facilities to run an electronic patient medical history recording system. The transition process will be carried out no later than 31 December 2023. Hospitals are one of the health service facilities that are required to maintain electronic medical records. It is important to assess readiness before implementing electronic medical records, to optimize its implementation. This research aims to analyze the challenges of implementing inpatient EMR at the PKU Muhammadiyah Bantul Hospital which will be reviewed from management elements, namely Man, Method, Machine, Material, and Information. This research carried out in the early 2023. The type of research used is descriptive research with a qualitative approach, to explore or obtain comprehensive, broad, and in-depth information regarding the challenges of implementing inpatient electronic medical records in terms of management elements. The result of this study; the challenge of implementing EMR from the Man element; there are found officers who do not have an educational background in medical records or are not qualified as medical recorders. Money; The hospital's operational cost budget is obtained from the hospital itself and funds for implementing inpatient electronic medical records are already available, so there are no obstacles to the budget for implementing the EMR. Method; Hospital does not have yet an SOP or proedure, especially for implementing inpatient EMR. Machine; facilities such as computers or PCs in each ward still need to be added. Material; Inpatient EMR materials are still in the development stage and are built by the hospital itself without any collaborating (third-party) vendors or teams. Information; Hospital has not conducted external training and outreach to medical staff who will use EMR in the inpatient unit. Conclusion, The hospital still has several obstacles such as in terms of man, method, machine, material, and information but there are no difficulties with money so it is necessary to increase the time allocation for implementing inpatient EMR.

Keywords— Electronic Medical Records, Elements of Management, Hospital

I. BACKGROUND

Technology and information are currently developing so rapidly that digital-based services are one of the basic health needs aimed at the community. Along with the development of technology and information, health service institutions in Indonesia have started to organize medical records that were previously paper-based and are now beginning to switch to electronic-based medical records, or what are called electronic medical records. Manual data management can be replaced by a system. Besides being faster and easier, managing data to become health information can also be more accurate [1].

Medical records are documents that contain patient identity data, examinations, treatment, procedures, and other services that have been provided to the patient. Electronic medical records are medical records created using an electronic system intended for administering medical records [2]. Electronic medical records are an important technological tool for improving the quality of care [3].

The implementation of electronic medical records is used as a strategy to improve the quality of health services, namely improving workflow, and overcoming obstacles to manual medical record-based clinical documentation which has many problems in the demands of exchanging information between health service providers [4].

In most developed countries, the implementation of electronic medical records has been implemented to improve the quality of health care. However, most developing countries lack the healthcare information technology infrastructure to develop electronic medical records [5].

The implementation of electronic medical records has an impact on patient satisfaction, accuracy in documentation, providing fast access to required patient data, and reducing clinical errors in services in healthcare facilities [6]. It is important to assess readiness before implementing electronic medical records, to optimize its implementation [7].

Patient medical records began to switch to electronic- based with the issuance of Minister of Health Regulation number 24 of 2022 concerning Medical Records. This policy regulates health service facilities to run an electronic patient medical

history recording system. The transition process is carried out until December 31, 2023, at the latest [8]. The Health Service Facilities in question are doctors' independent practice places, community health centers, clinics, hospitals, pharmacies, health laboratories, health centers, and other health service facilities determined by the Minister.

Management is important for every organization because it will be useful in organizing. Each element of management is useful for understanding how to apply aspects of this science in various fields. Management elements consist of man, money, method, machine, market, material, and information [9].

A preliminary study conducted at the PKU Muhammadiyah Bantul Hospital found that inpatient electronic medical records had not been implemented in the early year of 2023. Based on the problems above, researchers conducted research with the title Electronic Medical Record: Challenges in Terms of Management Elements Related to The Implementation of Inpatient Electronic Medical Records at PKU Muhammadiyah Bantul Hospital. This research aims to analyze the challenges of implementing inpatient electronic medical records at the PKU Muhammadiyah Bantul Hospital which will be reviewed from management elements, namely Man, Method, Machine, Material, and Information.

II. METHOD

The type of research used is descriptive research with a qualitative approach, to explore or obtain comprehensive, broad, and in-depth information regarding the challenges of implementing inpatient electronic medical records in terms of management elements at the PKU Muhammadiyah Bantul Hospital. The research was carried out in February 2023. The subjects of this research were 7 people who work in the medical records unit. The object of this research is the challenges of inpatient electronic medical records based on management elements.

III. RESULTS AND DISCUSSION

The challenges of implementing electronic medical records for inpatient PKU Muhammadiyah hospitals are viewed from the elements of man, money, method, machine, material, and information;

Man

The challenge of implementing inpatient EMR, in terms of the Man element, found that there were still officers in the medical records unit who did not have an educational background in medical records, such as officers in the filing unit who still had a high school educational background so they were not yet qualified as medical recorders, this is not in line with the Regulation of the Minister of Health. No. 55 of 2013 concerning the implementation of medical recorder work which states that a medical recorder is someone who has passed medical record and health information education by the provisions of statutory regulations and every medical recorder who carries out work in a health service facility is required to have a medical recorder.

Human resources are an important factor in implementing electronic medical records. According to the Regulation of the Minister of Health of the Republic of Indonesia, Number 82 of 2013 concerning Hospital Management information systems, information, and technology human resources consists of staff who have qualifications in the fields of system analysts, programmer staff, hardware staff, and network maintenance staff. One important issue that requires good planning is related to human resources and their abilities. The level of staff's ability to operate computers is a very important component in implementing electronic medical records in hospitals [10].

Money

Related to the challenges of implementing inpatient EMR as viewed from the Money element, PKU Muhammadiyah Bantul Hospital has a budget for hospital operational costs obtained from the hospital itself or hospital income, without any assistance from other parties. The budget system is a system that provides information for management plans.

All work programs at the hospital have been budgeted and budget submissions have been made since the beginning of the year. The hospital's income and expenditure budget will be reported every year. Funds for the provision of EMR, especially in the inpatient unit of PKU Muhammadiyah Hospital, also come from this budget. Implementing an inpatient EMR requires quite large facilities and infrastructure, such as those related to upgrading computers, servers, creating a system, as well as providing support for hospital team officers to motivate or speed up the process of creating an inpatient EMR. So far, PKU Muhammadiyah Bantul Hospital has had sufficient financial resources to cover all operational costs. According to Pratama et al, the overall adoption of EMR requires a lot of money and requires a long process because it requires readiness in terms of IT infrastructure and budget. The infrastructure assessment area consists of finance and budget [10].

One of the challenges in developing EMRs is that the budget for information technology in hospitals tends to be limited. The financial aspect is an important issue because hospitals have to prepare computers, cable networks, electricity, security systems, consultants, and training [11]

Method

The application of electronic medical records in terms of method elements found that before the implementation of inpatient EMR, there were no proposals submitted and currently they are still in the stage of preparing standard operating procedures (SOP).

The SOP related to inpatient EMR is still in the design stage but currently, the hospital has a service manual that functions as a reference or guide as explained by Darianti, et al. (2021), stated that there is no standard operating procedure, therefore its implementation is only carried out verbally by giving instructions in the process of implementing medical record digitization by the medical record management coordinator [12]. SOP is a set of instructions or steps taken to complete certain routine work processes with correct and good steps based on joint consensus for the implementation of various forms of activities and service functions created by Health Service Facilities by professional standards.

Material

In terms of material, Regarding the role of SIMRS in implementing EMR, it is stated that SIMRS is a design created by the hospital itself which consists of a team, not from a vendor or third party, as is the case with the inpatient EMR design. All forms that will be digitized will be submitted to SIMRS such as medical resumes, patient admission and discharge forms, informed consent, nursing care, clinical notes, operation reports, and medical supporting results. Several challenges exist in implementing an inpatient EMR from material elements, the first challenge is the development and regulation of medical and nursing standards, but SIMRS at PKU Muhammadiyah Bantul Hospital as a whole, has supported the implementation of inpatient EMR. The second challenge is designing the design of the inpatient EMR form. In line with research conducted by Amin, et al.(2021), the results obtained were that the inhibiting factor for implementation was the system design which was not yet perfect, whereas in the EMR system, the imaging facility did not yet exist, The EMR cannot yet display the number of prescriptions, does not yet display the number of doctors who prescribe, the prescribing format is not standard, and cannot formulate a medical diagnosis [13].

According to Usman Effendi (2015), materials are the raw materials needed, usually consisting of semi-finished materials and finished materials in initial operations to produce goods and services. Elements of materials management are used in the process of implementing activities because they are also considered management tools and means used to achieve goals [14].

Machine

In terms of Machine, the hardware and software facilities are quite adequate in terms of their usability, however, there is still a need for additional computer units and other support during implementation because those who do this are not only in the registration and polyclinic sections, but in all wards, medicine rooms, nurse stations, nutrition, delivery room and surgery. The facilities currently available at PKU Muhammadiyah Hospital include a network using LAN (Local Area Network), the PC used is a LINUX OS, and all computers use Windows OS. The system is designed to suit the user's needs, however, there are still several additional menus/items that need to be included in the system.

The machine element is one of the important points in implementing EMR, as research conducted by Usman Effendi states that machines are various equipment and technology that will be used to assist in a job to produce goods and services[14].

Information

In terms of information, it is stated that currently internal hospital training has been carried out in stages, such as socialization regarding the schedule for applying inpatient EMR which is carried out by the head of the ward, financial manager, and head of the inpatient installation. However, there is no external training yet because it is still in the comparative study stage or visits to other hospitals, so health workers need training to speed up the process of implementing inpatient EMR.

As explained by Damana (2016), technical training is needed for health workers for the implementation of electronic medical records, because a lack of training and technical support can be an obstacle to adopting electronic medical records.

Preparations, outreach, and training are needed to increase the capacity of officers to implement electronic medical records. Increasing the capacity of officers through training can increase insight/knowledge, skills and change attitudes (ethics). Training is a means to develop a person's abilities in life and work. In training, individual deficiencies can be identified and then corrected [15].

According to Ali (2018), it stated that several causes are considered to be obstacles to the migration process or implementation of electronic medical records, one of which is technical causes which contain the obstacles to the implementation of electronic medical records, namely that there has been no special training for potential users of electronic medical records which is good for supporting the implementation of the electronic medical record [16].

IV. CONCLUSIONS AND SUGGESTIONS

Some of the challenges of implementing inpatient EMR as seen by the management elements at PKU Muhammadiyah Bantul Hospital are as follows.

1. Man

   There are found officers who do not have an educational background in medical records or are not qualified as medical recorders, such as officers in the filing section. Human resources who have specific capabilities in the field of information technology are also not sufficient to manage the entire data processing process and maintenance of information technology infrastructure independently.

2. Money

   The hospital's operational cost budget is obtained from the hospital itself and funds for implementing inpatient electronic medical records are already available, so thereare no obstacles to the budget for implementing EMR, especially for inpatient care.

3. Method

   The hospital does not yet have an SOP for implementinginpatient EMR

4. Material

   Inpatient EMR is still in the development stage and was built by the hospital itself without any vendor (thirdparty) in collaboration or team. The hospital is still in thestage of designing the inpatient form.

5. Machine

   Facilities such as computers or PCs in each ward still need to be added, but hardware and software are currently sufficient.

6. Information

   The hospital has not conducted external training andoutreach. Internal training in hospitals is carried out in stages starting from the head of the inpatient installation,financial management, and the head of the polyclinic room. After that, it will be given to medical staff who will use inpatient EMR.

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