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EVALUATION OF MEDICAL CHECK-UP (MCU) SERVICES WITH INFORMATION SYSTEMS AT PERMATA CIBUBUR HOSPITAL

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Hospital Information System Evaluation, Medical Check Up, User Satisfaction.

ABSTRACT
This study aims to evaluate various aspects of the implementation of information systems in MCU services, including the speed and efficiency of services, data integration, user satisfaction (patients and medical personnel), and the level of patient data security. The method used in this study is a qualitative approach with in-dept interview, direct observatio, and document analysis. Interview were conducted involving 30 informants, namely 4 general practitioners, 1 spesialist doctor, 5 health staff, 5 Medical Check Up nurses, 5 management, 5 administrative officer, and 5 participants who have undergone MCU. The results of the study indicate that the implementation of information systems in MCU serviceshas accelerated the administration process and increased the accuracy of patient data management. However, several technical obstacles, such as registration problems and suboptimal system integration., are still obstaclesin the implementation of services. In addition, although patients are satisfied with the ease of access to informationthrough the online portal, some of them feel that they do not fully understand the use ofthe system. Based on these findings, it is recommended to improve staff training, create integration between information systems with laboratories, radiology and strengthen the security of patient medical data. This research is expected to provide insight into development and improvement of information systems in MCU services in Permata Cibubur hospital to achieve more efficient, safe and quality services.

Introduction

One of the early detection services in hospitals is Medical Check Up (MCU), which acts as a preventive measure to detect potential diseases or health problems early. Medical Check Up (MCU) is a procedure aimed at finding out the overall health condition. Medical Check Up (MCU) aims to ensure health conditions and anticipate the presence of diseases. MCU helps assess the condition of various organs of the body by checking heart function, blood sugar checks, urine tests, kidney function to find out cholesterol levels in the body that are adjusted to the patient's needs. In

addition, the MCU is also able to detect health problems to carry out further treatment. The results of the MCU are used to plan the right treatment method according to the patient's condition. MCU is not only carried out for someone aged 40 years and above but is recommended for young people to see their physical health condition (Arizal et al., 2017; Bakhrun & Hutahaean, 2021; Fuad et al., 2024; Gunawan et al., 2020; Mulyasari et al., 2020). There are times when the disease suffered by the patient does not show symptoms in the early stages, so that with the MCU it can assess the risk of diseases that may appear in the future or at least if the disease has been suffered can be suppressed so that more serious complications do not arise (Wati et al., 2019). MCU can also detect health disorders, such as kidney disorders, hypertension, diabetes, stroke, heart disease, lung disorders, tumors, cancer, bone and joint disorders.

Performing an MCU can ascertain the patient's health condition before undergoing certain treatments, can help reduce future hospitalizations, associated costs and improve health and quality of life. The advancement of information technology over the past few decades has had a major impact on various sectors, including the healthcare sector where it has enabled hospitals and other healthcare facilities to improve the efficiency as well as effectiveness of the services they offer. Information technology is also one of the focuses of health transformation launched by the Ministry of Health in 2021 as stated in the sixth pillar of its role in utilizing information technology and bio-technology to optimize health service processes, such as e-health, telemedicine and health applications. So that it will make the world of health in Indonesia more adaptable and make good use of the development of digitalization technology around health and become more developed (Beny, 2021; Ernawati & Budiyono, 2019; Khotimah, 2021; Molly & Itaar, 2021; Riyanti, 2023). The application of information systems in the MCU process is becoming increasingly important, considering the increasing need to provide fast, accurate, and effective services for patients. Along with the increasing public demand for quality, effective, and efficient health services, the evaluation of information systems in MCU services is a strategic step to ensure that the technology adopted really provides the expected benefits.

Permata Cibubur Hospital is one of the hospitals that has implemented an information system in the implementation of MCU. The use of this information system is expected to optimize various processes related to MCU, ranging from registration, examination, to management of examination results. An integrated information system is expected to reduce errors that often occur due to manual processes, such as errors in recording patient data or delays in submitting examination results. In addition, this system is also expected to increase patient satisfaction through faster and more efficient service, making it easier for doctors to evaluate in assessing the development of MCU results, monitor the history of chronic diseases suffered by patients and become a record for patients themselves to see their health development, with the presence of an integrated system that can manage MCU patient information effectively and efficiently (Adibi et al., 2020; Bain, 2015; Kurniadi & Pratiwi, 2017; Salsabila & Listyorini, 2021; Sanjaya et al., 2023; Santoso et al., 2022).

Although the information system has been implemented at Permata Cibubur Hospital, a number of challenges are still found, for example, the use of information systems that are not

optimal, where the results of supporting examinations such as laboratories and radiology are still in the form of printed physical documents, this is caused by various factors, such as company policies, regulations that require printed documents, personnel who have not received adequate training, as well as limited technological infrastructure. Therefore, an evaluation of MCU services at Permata Cibubur Hospital is needed. This study uses Donabedian Theory, focusing on how the quality of health services can be assessed and improved by examining three main components, known as structure, process, and outcomes. This model is used to evaluate and understand the quality of services in hospitals or other health facilities.

This evaluation will cover various aspects, such as patient satisfaction, speed of service, data accuracy, and effectiveness of resource use. This research will also evaluate how information systems help in clinical and administrative decision-making processes. (1). Structure Refers to the resources available to provide health services. This includes physical facilities, medical equipment, medical personnel, policies, and other resources that support the health care system A good structure is important to provide the basis for effective and efficient services. (2). Process: Describe how health services are delivered. This includes how medical personnel interact with MCU participants, the procedures followed, and how the service is managed, as well as follow-up on the results of the examination in the form of explanation of the examination results, medical recommendations, or referral to a specialist if needed. A good process involves quality communication, proper clinical decision-making, and compliance with applicable regulations. (3). Results: Refers to the extent to which the results of the examination provide information that is beneficial to the patient's health, for example, early detection of diseases or medical conditions that can be better treated if found early, such as hypertension, diabetes, heart, cancer or other diseases. The satisfaction of MCU participants includes satisfaction related to the examination process, communication with medical personnel, and the results obtained. Provides useful information in an efficient time, without burdening with unnecessary tests or long waits for test results. By conducting a comprehensive evaluation, it is hoped that Permata Cibubur Hospital can improve the MCU service process.

Previous study by Hasibuan et al. (2024) discusses the importance of Medical Check-Up (MCU) as a preventive measure for early disease detection and its role in improving public health. While the study emphasizes the benefits of MCU in detecting diseases and improving health outcomes, it lacks focus on the role of technology, particularly information systems, in optimizing MCU processes. This gap is addressed by this research, which investigates the integration of information systems in the MCU service process, aiming to reduce errors and improve efficiency in service delivery at Permata Cibubur Hospital.

The second study by Wati et al. (2019) highlights the importance of early disease detection through MCU, specifically focusing on its ability to prevent severe health complications. However, the study does not explore the challenges of implementing and optimizing information systems to support the MCU process, which is a central issue in this research. By focusing on how information systems can be leveraged to enhance the MCU process, this study fills the gap by providing an in-

depth evaluation of the system's effectiveness in improving patient satisfaction and the overall efficiency of health services.

This study aims to evaluate the implementation of information systems in MCU services at Permata Cibubur Hospital, focusing on their impact on service quality, patient satisfaction, and data management. The research will assess the structure, process, and outcomes of MCU services, offering insights into how the hospital can optimize its information systems to improve efficiency, reduce errors, and enhance patient care. The findings are expected to contribute to the development of better healthcare management systems, improving not only the MCU process but also the broader healthcare delivery at Permata Cibubur Hospital.

Materials and Methods

This study is a qualitative research to find out the overview of the evaluation of Medical Check Up services at Permata Cibubur Hospital which will be carried out from January to April 2025. In the context of this study, in-depth interview methods, document review, and field observation are used. To complete the data, the researcher uses triangulation which aims to ensure that the findings are more accurate and objective. The triangulation used here is source triangulation where in this study various parties or individuals are involved to obtain information related to MCU services and the use of information systems in hospitals. This study involved 30 informants consisting of information system users, namely: 4 General Practitioners, 1 Specialist Doctor, 5 Health Staff, 5 Medical Check Up Nurses, 5 Management, 5 Administrative Officers and 5 Medical Check Up Participants. By gathering perspectives from various parties, researchers can verify and understand more deeply about the quality of services and the implementation of information systems. The interview was conducted in 3 stages, namely an in-depth interview on the first day held on February 28, 2025, then the second interview was held on March 4, 2025 and the third interview was held on March 5, 2025.

Data collection was carried out by in-depth interviews with informants involved in this study can be seen in Table 1.

Table 1 Research Informant

Yes	Report	Information
1	Patient	An overview of their experience during the *Medical Check Up process*
2	Doctor	Information on the efficiency and effectiveness of the system in supporting the examination and diagnosis process
3	Nurse	Workflow and interaction with information systems
4	Administrative Officer	Data management and service administration processes
5	IT	Integration and maintenance of the information systems used
6	Manager	To understand the vision and policies related to the service

The purpose of conducting an in-depth interview is to obtain information directly from the user or related party. The information obtained is in the form of subjective data, such as opinions, satisfaction, and perceived problems. The advantage is that it can dig into informants more deeply

regarding user experience and perception. Meanwhile, the shortcomings can be influenced by the biases or discomfort of the informant. Examples here are patient experience in using the app, communication issues. In addition to interviews, data was obtained through document review. The documents examined in this study are shown in Table 2.

Table 2 List of Documents

Yes	Document	Information
1	Standard Operating Procedures (SPO)	Documents describing the steps in the *Medical Check-Up process* and the use of information systems
2	Patient Medical Records	Data regarding medical history, test results, and other medical records to evaluate the accuracy and integrity of the information
3	Hospital Policy Standard Operating Procedure (SPO) Document	Policies related to the use of information systems and health services to understand the direction and objectives of the organization
4	Service Performance Report	Data on wait times, patient satisfaction levels, and other performance indicators. Information Systems User Manual
5	Information Systems User Manual	Guidelines for the use of information systems to evaluate the ease and effectiveness of their use by staff.
6	Internal Audit Report	Documents that identify problems or deficiencies in service processes and information systems.
7	Staff Training Documents	Training materials used to train staff in using information systems and performing these services.

In document review, researchers collect documented information to understand existing systems or procedures. Objective data, such as procedures, policies or statistical data. The advantages of providing a general and factual overview of existing policies or procedures. The shortcomings can be less reflective of the reality experienced by the user. Examples of SPO findings on the use of the System, Statistical data on its use. In addition to in-depth interviews and document reviews, the researcher complemented with field observations, which can be seen in table 3 below.

Table 3 List of Observation Activities

Yes	Activities	Information
1	Registration	Enrollment flow, use of information systems, and officer-to-patient interactions
2	Medical Examination	Check-up flow, use of medical devices, and information system support
3	Medical Data Management	Patient data management, storage, and access by medical personnel.
4	Communication	Interaction between doctors, nurses, and administrative staff in the use of information systems
5	Waiting Time	Patient wait times at each stage of care and how information systems affect that time
6	Payment	Payment flows and how information systems support payment transparency and efficiency
7	Follow-up	Information system in setting and follow-up communication after inspection

The data from the interviews, secondary data analysis and field observations were processed by: in-depth interviews with informants to obtain the right information and complete explanations, the researcher prepared a list of questions and made informed consent, which is a form that contains a person's consent to voluntarily and without coercion to be the subject of the study by affixing a signature. The researcher first observes the nature, position and position of the informant to be interviewed, so that questions are selected which are very important, if the informant with a busy schedule, tries to conduct a short and dense interview. Secondary data analysis by collecting data that already exists in hospitals where the data already exists before the researcher conducts the research. Data acquisition can be done by making observations, here what the researcher does with participatory observation, it is expected to get a more holistic picture related to the situation being studied. One technique to bring out reliability is to perform triangulation techniques involving the use of more than one technique or data source to obtain a more comprehensive understanding and ensure the validity of the findings. In this context, participatory observation is one of the methods used to get a more holistic picture of the situation being studied.

In the data analysis stage, data collection is carried out based on questions or problems that have been formulated and then collected by means of observation, in-depth interviews, and the study of secondary or triangulation data documents. Then reduction and categorization were carried out with election data, focusing on simplification, abstraction, and transformation of rough data that appeared in the field. After reduction, then categorize the data according to needs, based on date, characteristics, informants, or research location. After that, the data is put into the metric box, the data is in the form of narratives, charts, flow charts, and so on. As the last data drawn, conclusions are drawn including important information in the research in language that is easy to understand and understand. The validity of the data in this study is maintained through triangulation of sources and methods. This research has received permission from Permata Cibubur Hospital Letter No. : 032/EKS/DIR-RSPC/II/2025 and has been declared to have passed ethics with Letter No. : Ket-37/UN2. F10. D11/PPM.00.02/2025 from the Ethics Commission of the Faculty of Public Health, University of Indonesia.

Results and Discussions

Structure

The structural components focus on aspects that support the running of health services, which include:

Hospital Facilities: Where information systems are an important and essential facility in hospitals. Hospital Information System (SIRS) is a system used to manage patient data, monitor health status, and support the recording and reporting of Medical Check Up results. This can be seen from the following interview excerpt:

"... My experience was quite positive. This information system is very helpful for us in monitoring the progress of the Medical Check Up. From patient registration, medical data processing, to recording examination results, everything is more organized and faster. Previously,

we were still using manual logging which took longer and was prone to errors..." (Female, Nurse, Senior)

Apart from the results of interviews in this study, the results of the document review also show that there is an Online Outpatient Registration SPO, which can be done through the Whats App and also uses the application to make appointments with doctors, view doctors' practice schedules, and register patients. This module is used to input MCU patient registration, both private and mass MCUs, upload MCU patients and cancel registration. This can be seen in field observations in the following view:

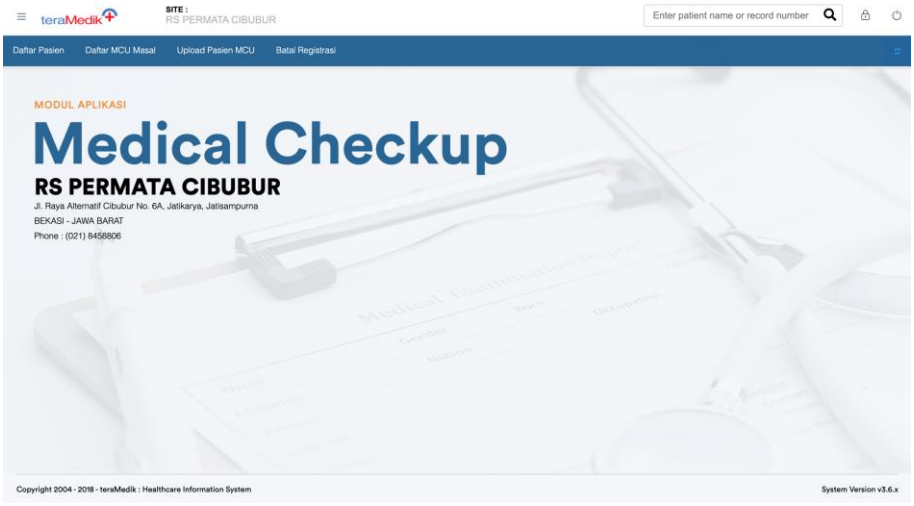

Figure 1 MCU Application Module

Teramedik Routine Internal Maintenance Memo that explains routine schedules outside of requests for updates, upgrades and other conditions. The SIRS Department Risk List, which is the risk identification of the SIRS department, is then grouped in the hospital's KMKP (Patient Safety Quality Committee) unit. SPO Medical Check Up Procedure which explains that the examination is carried out with the system, this can be seen in the following view:

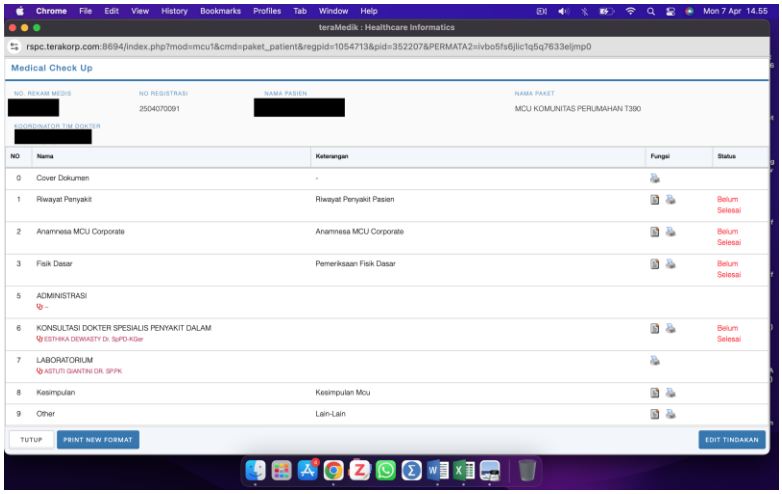

Figure 2 Medical Examination Format

In this format, the medical team inputs information or health results from MCU patients, which as a whole has helped speed up the reporting of results. The conclusion obtained from this study is that the overall hospital facilities are quite good, but laboratory and radiology results as well as medical records from specialist doctors involved in the MCU have not been integrated into the MCU module and are still in the stage of discussion and coordination with service providers or products.

Infrastructure: The space used for Medical Check-Ups, the available medical equipment, as well as the accessibility of the facility for patients that are comfortable and easily accessible, as well as the use of appropriate medical devices, can improve the quality of service. This can be seen from the following interview excerpt:

"... Ensuring that the MCU service runs well, related to the equipment, the readiness of the equipment including X Rays, the materials used such as CDs, films and others as well as the readiness of the radiographer himself where we must also coordinate with the doctor who reads the radiogram so that the experimental results can be obtained in accordance with the MCU poly..." (Female, Person in Charge of Radiology, Senior)

As a result of the document review, there is an IQ View Application Guide which is a video monitoring application used to access and control the CCTV system remotely through a smartphone or computer. SPO for the Making and Handling of Expert Results which explains a series of activities in the process of interpreting the image of the photograph into a writing that can be understood by the sending doctor. SPO Confirmation of Receipt of Goods Using the Hospital System which shows the procedure for confirming goods from the shipper's warehouse to the recipient's warehouse systematically. This can be seen in field observations in the following view:

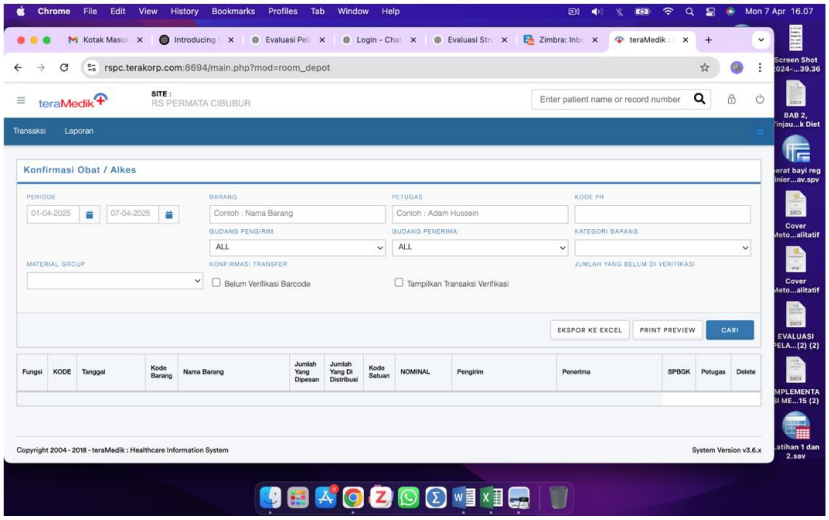

Figure 3 Display of Drug or Medical Device Confirmation (ALKES)

In this view, users can input the ordered drugs/medical devices, the category of goods and the quantity that has been distributed so that orders are automatically recorded in the system,

making it easier to track the status of orders, deliveries, and transaction history. The conclusions obtained from the hospital infrastructure as a whole have met the required standards and are already running well.

Human Resources: Medical personnel (doctors, nurses, and other health workers) who are trained in conducting Medical Check-Ups and competence in using hospital information systems. Training for medical and administrative staff in utilizing hospital information systems is essential to maintain the quality of service. This can be seen from the following interview excerpt:

"... My suggestion is that perhaps more in-depth and ongoing training for nurses and healthcare workers would be helpful, especially for those who are new to joining or who are not yet familiar with technology. In addition, there may be additional features in the system that allow nurses or healthcare workers to more easily monitor or automatically remind patients of their check-up schedules or test result updates. This can make the work process even more efficient..." (Female, Analyst, Senior)

The results of the document review include the Attendance of the Permata Cibubur Hospital Training where all employees are recorded as having participated in training organized by the hospital's Education and Training (diklat). List of Socialization/ Training Title/ Meeting of each department fills the ToT (Training of Trainer) which will be socialized on the training weekend. In the results of field observation, training was held offline and online which was shared via YouTube and employee attendance in the form of a link that can be accessed with smartphones and computers. The conclusion obtained in the study is that the training has gone well, held twice a month for all hospital employees

Policies and Procedures: A Standard Operating Procedure (SPO) that governs how Medical Check-Ups are conducted, including how patient data is collected and processed in the hospital's information system. Clear and structured procedures will ensure consistency and security of data, as well as quality of service. This can be seen from the following interview excerpt:

"... The Quality and Patient Safety Committee plays a role in setting MCU service quality standards, monitoring compliance with these standards, and evaluating the effectiveness of the information systems used in supporting the service process..." (Women, Management, Senior)

The results of the document review show the Decree of the Hospital Director on the Guidelines for the Organization of the Marketing and Customer Care Department at Permata Cibubur Hospital which establishes the organizational structure. The Guidelines for Nursing Services at Permata Hospital Cibubur explain nursing services where it is one of the services that contribute to efforts to maintain and improve public health. The Guidelines for the Preparation of Permata Cibubur Hospital Regulations explain that efforts to improve the quality of hospital services through accreditation are expected to improve the hospital system including inputs, processes and product outputs (including outputs and outcomes) by building a quality system and culture. The results of field observation documents can be accessed in the system. The conclusion obtained from the results of the study is that each department enters documents that have been ratified by the hospital leadership into the system so that it is easily accessible.

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Process

Health services in the context of Medical Check Up (MCU) involve a series of procedures starting from registration to follow-up examination results. Here is an overview of how health services are provided in the MCU process:

Registration and Data Collection

At this stage, MCU participants (patients) register and get Medical Check Up information, this can be done online or can be done directly to the hospital, by including the name, date of birth to get a medical record number as the patient's identity in the hospital system. MCU participants interact in the registration section, and the officer will confirm the patient's personal data, medical history, and complaints experienced by the patient. The officer will explain the types of examinations available and help patients choose an MCU package according to their health needs. Generally, patients who register directly are done during a visit to the hospital and are usually patients who are not very familiar with technology or who are elderly. Here is an excerpt of the interview below:

"... I find it easier to register for a health checkup because it can be done online without having to come to the hospital, but sometimes I feel confused when I want to take the results. I wasn't given an adequate explanation on how to access it..." (Male, MCU Patient)

The results of the document review are included with the SPO Medical Check Up Management Procedure, this procedure regulates the management of Medical Check Up services from receiving, registering then input the number of participants, the price and name of the MCU package for the invoice processing process until it is completed and sent to the intended company or other agency, SPO Effective Communication Guide in Providing Information and Education at Permata Cibubur Hospital includes guidelines that regulate communication procedures between medical personnel and patients, patients' families, and the general public so that it is conveyed accurately, clearly, and understandably in order to improve the quality and service of patients, the Internal Memo for MCU Promo Package Inspections which explains that every month a health examination package is held at a special price which can be seen on the social media uploads of Permata Cibubur Hospital. The results of field observations show that the MCU patient list includes the patient's medical records, examining doctors, types of MCU packages and other information, as seen in the following view:

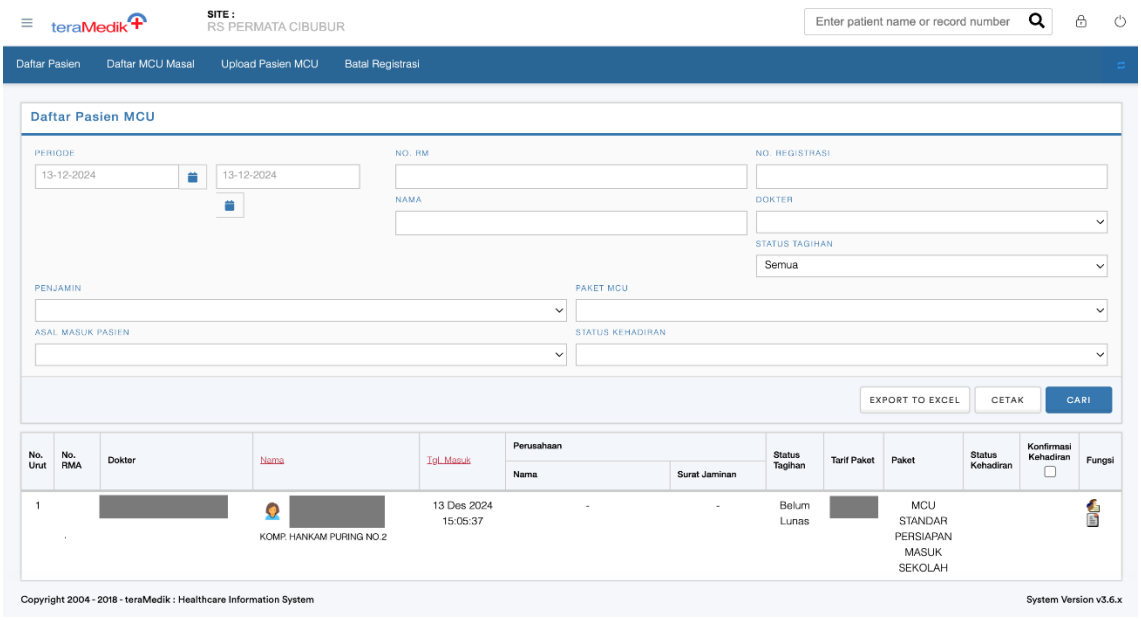

Figure 4 MCU Patient List Display

Administrative officers input data on MCU patients, examination doctors, types of MCU packages and other information into the system, this speeds up the waiting time for MCU patients who will undergo health checkups. Here, the administrative officer interacts with MCU patients and provides explanations about a series of MCU examinations in a communicative manner. Here are the following effective communication guidelines below:

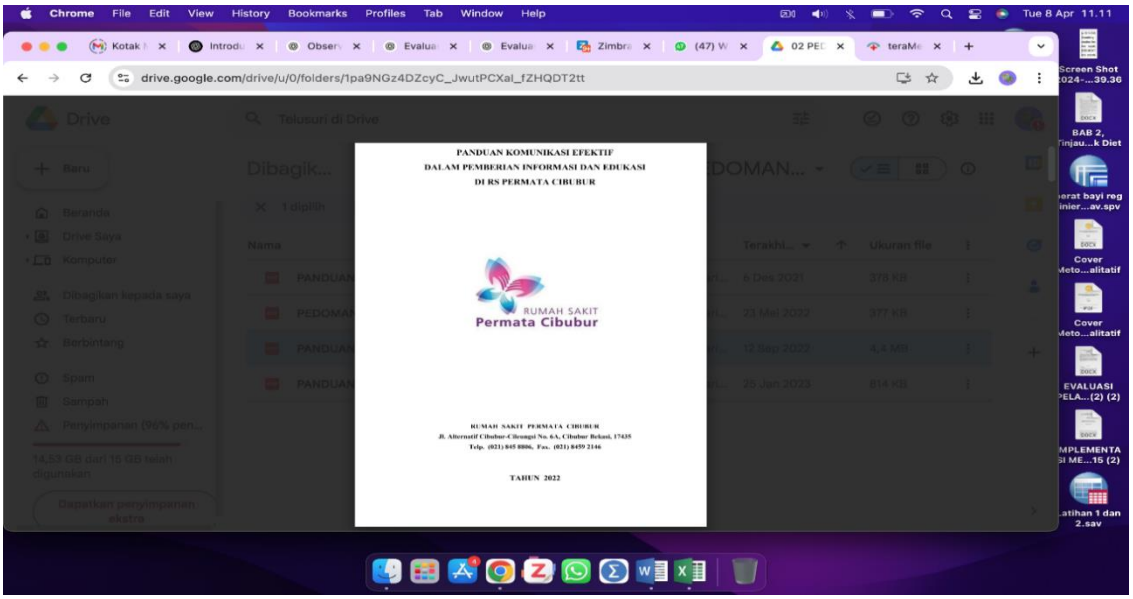

Figure 5 Effective Communication Guide

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The conclusion obtained from the results of the study is that there is a display of MCU patient lists and effective communication guidelines that have been implemented and ensure that the message conveyed can be clearly understood by the recipients, resulting in the same understanding and appropriate actions. Permata Cibubur Hospital uploaded MCU examination information on social media. In the upload, it can indirectly increase public awareness about the importance of health checks. Education and also promotion so that people care more about their health. This has been going well and is regularly socialized on social media.

Procedures Followed

The registration procedure begins with filling out a personal data form, collecting medical history, and determining the type of examination desired. This data is entered into the Hospital Information System (SIRS), which facilitates the management of patient data during the MCU process. Furthermore, the patient is directed by the officer to make payment transactions with personal or insurance. This is quoted in the following interview:

"... The use of the information system for registration is very easy at the beginning of MCU registration and the flow of the series of checks is very clear...." (Male, MCU Participant).

The results of the document review obtained an Internal Memo on the Implementation of the Use of the Barcode System which explains the implementation of the use of the barcode system at Permata Cibubur Hospital, usually containing important information related to the application of barcode technology in various aspects of hospital operations. SPO in Transaction

Explain the procedures, flows, and rules that must be followed in the financial and non-financial transaction process so that it runs in an orderly, transparent, and accountable manner. In field observation, it was found that in the system the entire transaction process is recorded and processed automatically by the system, the following doctor's transaction process:

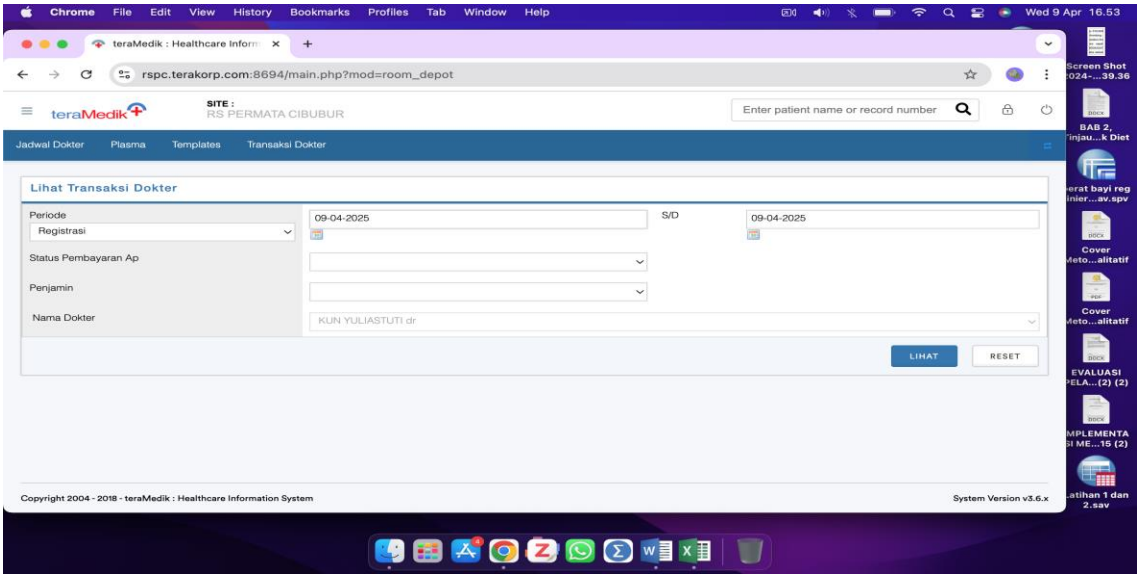

Figure 6 Doctor's Transactions

The conclusion obtained in this study is that with the barcode system for the stock counting process and checking goods faster and more efficiently, this has gone well, thus minimizing recording errors and improving service efficiency.

The follow-up process in Medical Check Up (MCU) services includes several stages that must be carried out with good communication quality, appropriate clinical decision-making, and compliance with applicable medical regulations. Here is a more detailed overview of the follow-up of the inspection results:

Explanation of the Examination Results to the Patient

Once the examination is complete and the results are available, the doctor or medical personnel in charge will contact the patient to provide an explanation of the results of the examination. Results reports can be received by patients in the form of hard copies or soft copies that can be sent via email, Whats App or in PDF form. The results of this examination and its explanation should be done in a way that is easy for the patient to understand, avoiding the use of medical terms that are too technical, unless the patient asks for further explanation. The telemedicine flow is uploaded on the social media of Permata Cibubur Hospital, so that patients can understand and access it easily. This is quoted in the following interview:

"... I can access the test results anytime and anywhere. This is very convenient, especially if I want to consult a doctor can be done via telemedicine with a quick process, and I am very satisfied with the explanation given by the doctor... (Male, MCU Participant)

The results of the document review were obtained by SPO Doctor Consultation Through Telemedicine, Telemedicine Flow

Consultation services can be accessed via telemedicine. The telemedicine flow is as follows:

Patient makes an appointment Consultation with a doctor Medication taken or using delivery services

App-based online health consultations can be accessed via Zoom or Whats App, the steps have been shared on social media to make it easier for users.

In conclusion, application-based online health consultation services are already running well where they have been systematically compiled and can be accessed through the Zoom or Whats App platforms, with user guides that have been shared through social media to facilitate access and increase the effectiveness of services to users.

Clinical Decision Making

Based on the results of the examination, the doctor will determine whether or not there are significant medical findings (requiring further action) or not. If the results of the examination are normal, the doctor will explain that no health problems have been found and give general recommendations to maintain a healthy lifestyle. Meanwhile, if the results of the examination show

abnormalities, the MCU doctor will make a referral letter to a specialist doctor in accordance with the abnormalities found for further management.

This is quoted in the following interview:

"... Previously, if we used manually, it took longer to check the test results or search the patient's medical records. Now, with this system we can access it very quickly. This helps us in making more informed and faster medical decisions..." (Female, Occupational Specialist, Senior)

The results of the document review obtained by the SPO Flow of Elective Measures From the Polyclinic explain the standard procedures that must be followed when patients are referred to undergo elective measures (scheduled and non-emergency) from the polyclinic unit to the action room, operating room, or hospitalization. SPO Referral to DPJP (Doctor in Charge of Patient) explains referring patients from one service unit to DPJP, namely doctors who are responsible for the treatment and treatment of patients while in the hospital. SPO Supporting Examination Pro Elective Surgery Dan Cito explained the standard procedure for conducting medical supporting examinations (such as laboratory, radiology, ECG, and others) as a requirement before surgery, both elective (scheduled) and cito (emergency). In field observation, a patient consul referral form was obtained which can be input into the following system:

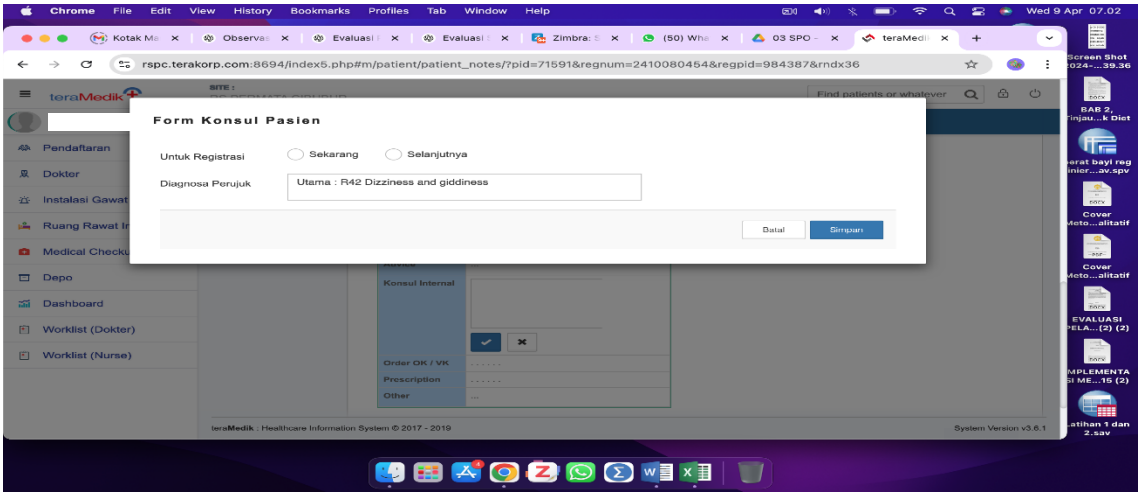

Figure 7 Patient Consul Form

The conclusion obtained in this study is that with an integrated system, it becomes easy to make the right medical decisions. The patient consul form is currently available directly in the system for easy access and documentation. This has gone well and has been socialized to practicing doctors at Permata Cibubur Hospital.

Compliance with Applicable Medical Regulations

In an effort to maintain the quality of health services, compliance with applicable medical regulations and standards is an absolute thing. All medical personnel are required to carry out

clinical practice in accordance with legal provisions, professional guidelines, and standard operating procedures that have been set by health institutions and regulatory authorities. This is quoted in the following interview:

"... Hospital management has an important role in ensuring the compliance of medical personnel with applicable medical regulations, including the implementation of SPO Referral to the DPJP and the implementation of the Clinical Pathway for priority diseases..." (Women, General Practitioner, Senior)

The results of the document review found: SPO Referral to DPJP (Doctor in Charge of Patient) which explains the procedures that must be followed by all medical personnel in the hospital in referring patients to specialists, and ensuring that referrals are carried out appropriately, effectively, and based on complete medical data. Clinical Pathway Hypertension, Diabetes Mellitus, Coronary Heart Disease, Breast Cancer and other diseases. The existence of the Clinical Pathway helps ensure that the flow of medical services runs according to medical protocols and clarifies the stages of diagnosis and therapy that must be followed by medical personnel. In the field observation, the following Clinical Pathway upload was obtained:

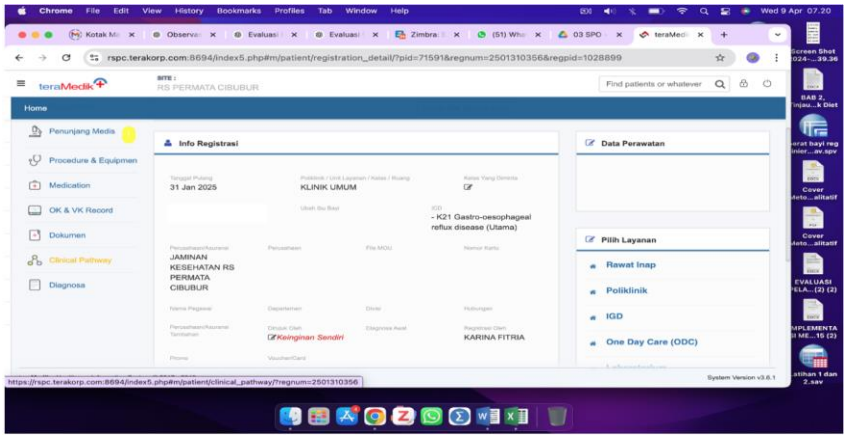

Figure 8 Clinical Pathway Upload

The conclusion obtained in this study is that overall, this document aims to improve the quality of medical services through structured referrals and based on complete medical data, and has been running well so that it can support better treatment and more optimal outcomes for patients.

Results

Accurate and easy-to-understand health information plays an important role in raising public awareness of the risks of chronic diseases. This can be seen from the following interview excerpt:

"... The information system is very helpful for me in accessing and assessing the results of patient examinations, especially for the early detection of chronic diseases such as hypertension, diabetes, heart disease, and even early indications of cancer. All data from the laboratory, ECG, X-

rays, to previous medical records can be immediately viewed in an integrated manner. For example, for patients with high blood sugar, I can immediately provide education and follow-up plans. The same goes for patients who show signs of heart disease or abnormal masses that need further follow-up. With this system, I can refer to a specialist doctor according to the health problems found..." (Women, General Practitioners, Seniors).

The results of the document review were obtained by the Outpatient Program which explains services to patients for observation, examination, diagnosis, treatment, medical and mental rehabilitation and other health services. Guidelines for Outpatient Installations which are guidelines for medical and nursing personnel who are on duty at the Outpatient Installation of Permata Cibubur Hospital. In the field observation, a schedule for the implementation of activities containing hospital service optimization programs, Clinical Practice Guidelines (PPK) which contains recommendations to optimize patient care in hospitals. Minimum Service Standards (SPM) for hypertension, diabetes, heart disease, cancer or other diseases. The conclusions obtained from this study are that the work program and the Minimum Service Standards have been running well and are expected to be a reference for carrying out activities and can evaluate to improve the quality of service and patient safety.

The evaluation of Medical Check Up Services with information systems at Permata Cibubur Hospital has a positive influence on the efficiency of Medical Check Up services, most patients feel that their waiting time is reduced, thus the hospital understands based on patient experience, and the administrative process becomes faster and more organized (M Setyawati, P Oktamianti, 2023). Analyzing the service process is carried out by identifying obstacles and problems that can be seen to arise from the limitations of technological infrastructure, where unstable internet connections hinder the smooth use of information systems, especially when reading the results of patient examinations in real-time, evaluating the effectiveness of the information system ensures that the information system implemented is effective in supporting operations, improving performance, and providing maximum benefits for the user as a whole (PO Sihole et al., 2024). By focusing on improving data security, speed and performance, user experience, integration between systems, it can provide improvement recommendations where it focuses on the main problems identified, in addition to being able to remind the routine schedule of examinations, so that the information system can be more efficient, safe, user-friendly and in line with the hospital's service goals (Nurwito B. S, 2024).

Conclusion

This study concludes that the application of information systems in Medical Check Up services at Permata Cibubur Hospital has contributed positively to the effectiveness of services, especially in accelerating data access, integrating examination results, and improving user experience for medical personnel and patients. The system also helps encourage patient adherence to periodic checkups. However, there are still technical obstacles such as unstable internet connections and device limitations, as well as non-technical obstacles felt by hospital staff who are still not optimal to be trained, especially for staff who have just joined or who are not familiar with

technology as well as obstacles to coordination between units. Therefore, it is recommended that hospitals optimize the integration of examination reminder systems and features, improve technology infrastructure, hold periodic training for users, and conduct regular evaluations to ensure that the information system can run more effectively, efficiently, and support the overall improvement of service quality.

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