OPTIMIZATION OF THE OUTPATIENT REGISTRATION PROCESS IN THE ELECTRONIC MEDICAL RECORD SYSTEM TO INCREASE EFFICIENCY AT AL IHSAN HOSPITAL

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Abstract. This study aims to evaluate the outpatient registration process at Al-Ihsan Bandung Hospital, especially in the context of comparison between online and manual registration systems. The observation results showed that most patients had taken advantage of online registration through the Al-Ihsan Mobile Hospital application, which allowed for a faster verification process through fingerprint technology and facial scanning, especially for BPJS participants. However, there are still a number of patients who have not taken advantage of online services, causing long queues, service delays, and congestion in the waiting room. The average waiting time for patients from the verification stage to medical services was recorded at 139.33 minutes, exceeding the maximum standard of 60 minutes according to the Minister of Health Regulation No. 129 of 2008. Analysis using the 5M approach (Human, Method, Material, Machine, and Money) shows that the main obstacles stem from labor limitations, queue system errors, and technical glitches. Meanwhile, financial factors are not a significant cause. Improvements are needed in patient education, additional officers, and technology optimization to improve efficiency and quality of service.

Keywords: *Patient registration, Al-Ihsan Hospital, outpatient services, waiting time, online registration, mobile JKN, SIMRS, digitization of services*

Introduction

Law Number 17 of 2023 paragraph (10) explains that hospital personnel are health service facilities that provide individual health services in a complete manner through promotive, preventive, curative, rehabilitative, and/or palliative health services by providing inpatient, outpatient, and emergency services. The hospital is always committed to providing good service to the community, both in terms of medical and non-medical services. Therefore, the hospital must implement an effective performance strategy to ensure optimal service in line with the effectiveness of work in the hospital.

Hospitals in providing services to the community, especially in the outpatient registration section, are supported by medical records. Medical records are regulated through the Minister of Health Regulation Number 24 of 2022 concerning Medical Records. According to Article 1 Paragraph (1), Medical Records are documents that contain patient identity data, examinations, treatments, actions, and other services that have been provided to patients. In addition to documents that contain all patient information, medical records also serve as proof of the quality of human resource performance in hospitals.

Waiting time is the time used by patients to get health services from the place of registration to entering the doctor's examination room. Patient waiting time is one of the components that can potentially cause dissatisfaction. The length of patient waiting time reflects how the hospital manages the service component that is adjusted to the patient's situation and expectations (Neti, 2015).

According to previous research (Sofi, 2024) on a review of the implementation of online system registration to support the efficiency of waiting times at Al-Ihsan Hospital, 85.2% of respondents agreed with online registration as part of the digitization of hospital services. Observations revealed an average service time of 3,590 minutes, equivalent to 2 hours and 4 minutes. The main problems found were that patients who had made online reservations did not show up on schedule and the patient's lack of understanding of the online registration flow. In addition, management elements also play a role in patient service. It can be concluded that the implementation of the online registration system is quite effective in overcoming the problem of waiting times, but it requires increased socialization and coordination with patients.

Al-Ihsan Regional General Hospital (RSUD) is a public hospital owned by The government serves the general public by providing a variety of health services, both outpatient and inpatient. To provide quality health services for the community, hospitals must continue to improve the quality and health services. In the process of improving the quality of outpatient health services and also to solve problems that occur in

outpatient registration. Problems that often occur are such as system errors, electronic devices are constrained by the network, fingerprints or facial scans are difficult and undetectable which can cause queues to be hampered.

Methodology

This research method uses a quantitative descriptive method. Research methods are valid scientific methods that aim to find, prove and develop knowledge so that it can be used to understand, solve and anticipate problems (Sugiyono, 2012).

Quantitative descriptive research is research that only describes the content of a variable in the research, not intended to test a specific hypothesis Thus, it can be known that quantitative descriptive research is research that describes, examines and explains a phenomenon with data (numbers) as it is without the intention of testing a certain hypothesis (Sulistyawati, 2022).

The data collection method is to involve 30 respondents with a majority of 18 - 40 years old, for primary data collection through interviews and calculating the final results according to the criteria and then interviewing 2 medical record officers. Secondary data through direct observation was carried out in March 2025 – May 2025 at Al-Ihsan Bandung Hospital. The use of research instruments includes interview guidelines with stationery as a means of recording interview results and for data collection in the form of photos and copies of data. Data collection techniques include:

1. Interview, to get complete information, the researcher conducted a question and answer method with patients who were undergoing outpatient treatment at Al-Ihsan Hospital.

2. Observation was carried out when the researcher helped verify the outpatient before going to the intended polyclinic to find out the obstacles experienced by the patient during the verification. And also a thorough observation of the system that is running, then studying the existing shortcomings, after making a provisional decision on the existing problems as a whole and then defining the problem.

Population is a whole of objects or individuals that have certain characteristics that are of concern in a study, population can be people, objects, events, or data, depending on the purpose of the research. The population selected for this study included all patients who had received outpatient care at Al Ihsan Hospital.

A sample is a part of the number and characteristics possessed by a population. The sample is a number of individuals selected from the population and is a part that represents the entire population (Wanda, 2024). Samples are selected by Purposive

Sampling. The sample consisted of 30 respondents who were undergoing treatment, with details of 18 women and 12 men then used as samples for further research.

Results and Discussion

1. **Registration counter activities include accepting online and manual patient registrations**

   Based on the results of direct research, the outpatient process at Al-Ihsan Hospital is carried out using a unit numbering system. The numbering system is so that when the patient comes to the healthcare facility for the first time, the patient will get a medical record number and the number will be used for the next visit. Meanwhile, his medical records are stored in one file with the same number. The goal is to make it easier to record data and report, this system also makes it easier for medical officers to find and access medical records because each patient only has one number.

2. **Respontime waiting time that patients get**

Table 1. Observation Results of Average Service Wait Time

Wait time (minutes)
Total wait time = 4,180 minutes
Number of data = 30
Average wait time = 4,180 / 30 = 139.33 minutes
139.33 / 60 = 2.32 hours
= 139.33 = 2 hours 32 minutes

3. **Factor that affect the waiting time of outpatient registration services based on the Man, Money, Method, Materials, and Machine factors.**

a. **Man Factor**

Referring to the results of the analysis listed in Table 1, from as many as 30 data analyzed, an average total waiting time of 4,180 minutes was obtained,

which is equivalent to an average of 139.33 minutes per patient. When converted to a unit of hours, the time shows a duration of about 2 hours and 32 minutes. Based on this data, it can be concluded that the longest waiting period occurs at the stage of patient verification by service officers, before the patient enters the room to get an examination from a doctor. The performance of employees of the Al Ihsan regional general hospital is very good in providing services to patients, but in this case the hospital still has problems that can hinder the smooth running of services (Hamdan, 2023).

Table 2. Approval scale range for online registration

Final Results
= Total score / Y x 100
= 2800 / 3000 x 100
= 93% in the category "strongly agree/like"

Based on the data shown in Table 2, it can be interpreted that as many as (93%) of the total respondents expressed their agreement with the statement that the online registration mechanism is an integral part of the process of digitizing services in hospitals. The system was designed and developed by the hospital's in-house information technology (IT) team, which has previously conducted a series of in-depth observations of patient patterns and needs. These observations include the identification of barriers often encountered in the conventional registration process, as well as patients' expectations for faster and more structured health services. The result of this approach is an online registration system that not only provides easy access and certainty of outpatient service schedules, but also significantly contributes to improving the overall operational efficiency of hospitals.

b. **Money Factor**

The availability of sufficient budget is very important in supporting smooth running outpatient registration process. The budget that is used effectively to support counter operations can directly contribute to reducing service waiting times, increasing patient satisfaction, and supporting the overall quality of hospital services. It is known that the hospital has provided funds to meet the operational needs of registration such as: Printer machines for printing name labels, machines and paper for printing LEP and office stationery.

c. **Method Factor**

The implementation of outpatient registration services is in accordance with the SOP. However, there was one case where the officer made a mistake in managing the patient queue and made patients who should be at the top of the list recorded or served at the bottom, thus causing a discrepancy in the order of service and potential complaints from patients.

d. **Material Factor**

Material factors greatly affect the smooth and efficient of registration services. Equipment shortages or damage can cause delays, data errors, and patient complaints. The outpatient registration counter at Al-Ihsan Hospital has been equipped with adequate facilities to facilitate the registration process such as computers, PEL printing machines, name label printing machines, fingerprint tools, patient facial detectors (face scans). However, there are PEL printers that cannot be used, therefore officers will print PEL manually using ordinary paper or use PEL printing services in other units for a while.

e. **Machine Factor**

There are often disturbances in the hospital's information system. The system that is supposed to be the center for patient data processing often experiences technical problems, such as not being accessible, an error occurs when data input, or the system suddenly closes while it is in use. This caused the officer to be unable to continue the registration process, resulting in a delay in service to patients.

DISCUSIONS

1. **Registration counter activities include accepting online and manual patient registration**

Data was obtained that most patients had taken advantage of online registration services before they came directly to the hospital. After obtaining the queue number on the Al-Ihsan Mobile Hospital application, patients can immediately carry out the verification process at the registration section without having to go through a conventional queue. Especially for patients participating in BPJS at Al-Ihsan Hospital Bandung, the online registration system has been integrated with the fingerprint identification feature or face scan, which functions as an identity verification mechanism. The medical record numbering system used has also adopted a single series numbering method, where each patient has one medical record number that applies to all service units in the hospital.

Through the results of direct field observation, it was found that there are still a number of patients who have not used the online registration facility so they have to wait in line manually (offline) at the hospital. Another problem that arises is related to the limited visit quota at the polyclinic, which has often run out because most patients have made reservations in advance through the Al-Ihsan Mobile Hospital Application. As a result, patients who have not registered online must wait until the examination of patients who have registered online is complete. The online reservation system is generally done before the service's operating hours begin. This can be seen from the number of patients or families who have come to the hospital since 06.00 am to take the queue number through the self-registration machine. Meanwhile, the new registration service officially opened at 07.30 am, so there was a time difference of about 1 hour and 30 minutes between the queue number collection and the start of the registration process, which also contributed to the length of the waiting time.

Furthermore, it was found that the discrepancy between the online reservation time and the estimated service time led to an extension of waiting time. This factor is exacerbated by the lack of understanding of some patients

regarding the procedure and online registration flow. In practice, many patients who come to the hospital are accompanied by more than one family member or even up to two or three people, which ultimately causes overcrowding and crowding in the polyclinic waiting room. The basic concept of this online registration service is actually part of the computer-based digitization process, which allows patients to make reservations through the web-based system that has been provided. After getting the queue number online, patients only need to attend the hospital according to the estimated hours of service that have been listed on the Al-Ihsan Mobile Hospital application to verify and queue numbers without having to wait long to be manually registered by administrative officers.

2. **Respontime waiting time that patients get**

Based on the results of the research that has been conducted, it is known that the patient waiting time process begins from the initial stage of condition assessment by the nurse until the process is declared complete. At this stage, the recorded wait time is in the range of less than or equal to 60 minutes. This stage generally includes an initial assessment conducted by a healthcare professional or nurse to identify the patient's underlying condition before the patient is directed to receive follow-up services from a doctor.

Meanwhile, in the process of medical services before involving direct interaction with nurses or doctors, it was found that there was an additional waiting time span starting from the time the patient came to the hospital to verify identity through a fingerprint scanning system or face scan, especially for BPJS participants until the patient actually received services from the doctor. The average waiting time recorded in this phase is 139.33 minutes, which when converted is equivalent to 2 hours and 32 minutes. This duration is relatively long when compared to the ideal standard waiting time for outpatient services at advanced health facilities. Therefore, the waiting time period at this stage is categorized in the classification of long waiting time because the waiting time

for outpatient services, including registration, should not exceed 60 minutes (Permenkes No.129 of 2008).

Furthermore, the analysis of the cause of the long waiting time was caused by a number of technical obstacles experienced by patients in the check-in process through the Mobile JKN application. Some patients experience network disruptions that hinder the check-in process, while others face device limitations because the smartphones used do not support apps. In addition, there are many cases where the patient's account is automatically logged out of the application, so the patient has to log in again. If the patient forgets the password, the process becomes longer because the patient needs to be directed to the JKN Ambassador section to recover the account.

3. **Factors that affect the waiting time of outpatient registration services based on the Man, Money, Method, Materials, and Machine Factors.**

a. **Man Factor**

The lack of the number of officers on duty in the outpatient registration service section at Al-Ihsan Hospital Bandung has become one of the significant factors that cause the accumulation of patient administrative files, which ultimately has a direct impact on delays in the process of medical service flows. This limited human resource causes the process of data verification, identity recording, and input of patient information into the hospital information system to run slower than the time it should be, so that patients have to wait longer to be able to proceed to the examination or treatment stage by medical personnel. This condition not only causes long queues and discomfort for patients and their families in the waiting room, but also has the potential to interfere with the effectiveness of doctors' service schedules and reduce the overall quality of service.

b. **Money Factor**

Based on the results of the observations that have been made, no special or significant indications were found that financial factors or money-related aspects affected the course of the service process in the registration section. Thus, it can be concluded that the problems that occur in the

registration service are not related to financial constraints, but more related to the aspect of human resources and the governance of operational processes in the unit. This shows that the focus of improvement and attention should be directed to increasing the capacity and quality of human resources as well as the efficiency of work procedures to support the smooth flow of patient registration services.

c. **Method Factor**

Standard Operating Procedures (SOP) are guidelines or references for carrying out work tasks in accordance with the functions and performance assessment tools of hospitals based on technical, administrative, and procedural indicators in accordance with the relevant work procedures (Mastia, Tutik, 2022). Although outpatient registration service officers have carried out their duties in accordance with applicable operational procedures, in practice errors are still found in the management of patient queues, such as inconsistencies in the order of calls with the time of patient arrival or errors in the data input of the queue system, which have an impact on delays in the service process and cause inconvenience for waiting patients.

d. **Material Factor**

In general, Al Ihsan Bandung Hospital already has sufficient and adequate supporting facilities to support the smooth patient registration process, such as computer devices, special printers for printing Participant Eligibility Letters (PEL), fingerprint scanners, and patient facial detector systems that have been integrated with the registration system. However, in practice there are still technical obstacles, one of which is a malfunction in one of the SEP printers which results in the device not being able to function as it should. In these conditions, as an alternative step, administrative officers take a policy to print PEL manually using plain paper as a form of anticipation so that the registration process is not hampered. In addition, some officers also have to take advantage of printing machine facilities in other units in the hospital environment that can still operate properly. This procedure is

performed temporarily while waiting for the repair or replacement of the problematic appliance. This condition shows that even though the facilities of Al Ihsan Hospital have modern and quite complete infrastructure support, the sustainability of the function of each tool is highly dependent on its maintenance and technical readiness.

e. **Machine Factor**

Based on the data and information obtained during the research process, machine or hardware factors play a very important role in supporting the smooth service process, especially in the outpatient registration section. In this context, what is meant by machine factors includes all forms of technology-based supporting facilities, such as computers, input-output devices, and application systems used in the management of health service information. One of the main components used is SIMRS (Hospital Management Information System), which should be able to integrate all patient data quickly and accurately. SIMRS is a management information system consisting of several integrated sub-systems, one of which is the registration system. Registration is the initial stage for patients to get health services (Muhammad Irham, 2023). However, it was found that in its implementation, there are still technical obstacles that occur quite often, including unstable internet network connections and disruptions to computerized systems, both in the form of slow data loading, errors in information input, and system interference during verification. These problems directly impact the delay in the patient registration process, causing irregular queues, and causing dissatisfaction on the part of patients due to long waiting times.

Conclusion

1. Most of the patients of Al-Ihsan Hospital have used online registration which makes it easier to queue and verify, especially for BPJS participants. However, some patients are still waiting in line manually, causing delays and congestion in the waiting room due to ignorance of the procedure and the number of companions.

2. Based on the results of the research, it can be concluded that the patient's waiting time at the medical service stage at Al-Ihsan Hospital, especially before the verification process until meeting the doctor, still far exceeds the standard set by Permenkes No. 129 of 2008, which is more than 2 hours and 30 minutes. This is due to the large number of patients who have not checked in due to network problems and also logged-out accounts.
3. The waiting time for outpatient registration services at Al-Ihsan Hospital is affected by staff shortages, errors in the queue method, technical problems in the machine, and device constraints, although financial factors do not have a significant effect.

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