



Evaluating delays in non-compounded prescription services under health coverage

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ABSTRACT

Background: Hospital pharmaceutical services are critical to achieving high-quality healthcare. Waiting time for outpatient prescription services is a key performance indicator and a major concern for patients, particularly in Indonesia's BPJS Kesehatan (National Health Insurance) program. At Hermina Bekasi Hospital, long prescription wait times have led to patient dissatisfaction, prompting this study to evaluate the waiting time for non-compounded prescriptions to assess compliance with national standards. **Methods:** This study employed a mixed methods design with an explanatory sequential approach. The quantitative phase involved observing 100 non-compounded outpatient prescriptions in March 2023 to measure waiting times. Data were analyzed for average durations and compliance with the ≤30-minute standard set by the Ministry of Health. The qualitative phase included in-depth interviews with five pharmacy staff, using an input-process-output framework to identify underlying causes of delay. **Findings:** Only 2% of prescriptions met the 30-minute standard; the average waiting time was 1 hour and 50 minutes, with a maximum of 3 hours and 32 minutes. The verification stage was the most time-consuming. Factors contributing to delays included inadequate human resources, insufficient facilities and infrastructure, SOP implementation gaps, overlapping doctor practice hours, and distant medication storage. These delays caused patient complaints and risked non-compliance with hospital accreditation benchmarks. **Conclusion:** The waiting time for non-compounded outpatient prescription services at Hermina Bekasi Hospital fails to meet national standards. Improvements are urgently needed in human resources allocation, doctor scheduling, infrastructure, and process efficiency to reduce delays and enhance service quality. **Novelty/Originality of this article:** This study offers a comprehensive evaluation using a mixed-methods framework to diagnose systemic inefficiencies in prescription services within a BPJS healthcare setting. The integration of both quantitative and qualitative insights provides actionable recommendations, such as layout redesign and warehousing solutions, which are often overlooked in similar studies.

KEYWORDS: BPJS kesehatan; hospital pharmacy services; prescription waiting time.

1. Introduction

Nowadays, the public increasingly relies on hospitals as a primary means of treating and overcoming illnesses, as well as maintaining overall health. This growing trust has led to higher expectations for quality healthcare services, prompting hospitals to strive to deliver services that exceed patient expectations (Haifa & Resni, 2022). As healthcare-oriented business organizations, hospitals play a crucial role in achieving optimal public health outcomes (Rikomah, 2017).

According to Law of the Republic of Indonesia Number 44 of 2009 concerning Hospitals, a hospital is defined as a comprehensive healthcare institution that provides

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inpatient, outpatient, and emergency services. Its operations are influenced by developments in science, technology, and socio-economic factors, with the aim of continuously improving service quality and ensuring accessibility for the public in order to achieve the highest possible standard of public health (Kementerian Hukum dan HAM RI, 2009).

One of the key services expected by patients is pharmaceutical care provided by the hospital pharmacy department. Hospital pharmaceutical services are an integral part of a comprehensive healthcare system that focuses on patient-centered care, the provision of high-quality medications, and accessible clinical pharmacy services for all segments of society. There are two main types of pharmaceutical activities in hospitals: managerial activities, which involve the management of pharmaceutical supplies, medical devices, and disposable medical materials; and clinical pharmacy services (Karminingtyas et al., 2022). Clinical pharmacy services involve direct care provided by pharmacists to patients with the aim of improving therapeutic outcomes and minimizing the risk of adverse drug reactions, thereby ensuring patient safety and enhancing quality of life (Ministry of Health of the Republic of Indonesia, 2016). These pharmaceutical services include pharmaceutical care related to drug identification, prescription assessment and dispensing, drug use monitoring and evaluation, as well as the provision of drug information services (Rusli, 2016).

One form of clinical pharmacy service is prescription review and dispensing, which refers to a series of activities involved in medication preparation. This includes receiving and reviewing prescriptions, checking product availability, preparing pharmaceutical preparations, medical devices, and disposable medical supplies, conducting drug evaluations, and dispensing medications accompanied by patient counseling. The purpose of prescription review and dispensing is to ensure that medications are properly identified and prepared so that patients receive appropriate and high-quality treatments (Direktorat Jenderal Kefarmasian dan Alat kesehatan, 2019). Accordingly, prescription services are subject to minimum service standards as stipulated in the Regulation of the Minister of Health of the Republic of Indonesia Number 129/Menkes/SK/II/2008, as part of the government's responsibility to guarantee that every citizen receives quality healthcare in accordance with their needs (Kementerian Kesehatan RI, 2019). Prescription service waiting time is one of the key indicators of the minimum service standards in the pharmacy department of a hospital. It is measured from the moment a patient submits a prescription until the medication is received (Roselina et al., 2021; Faramita, 2016). According to the Regulation of the Minister of Health of the Republic of Indonesia Number 129/Menkes/SK/II/2008, prescription service waiting times are categorized into two types: non-compounded (ready-to-dispense) prescriptions, with a maximum standard of ≤ 30 minutes, and compounded prescriptions, which have a longer standard of ≤ 60 minutes due to the additional preparation process involved (Kementerian Kesehatan RI, 2008). However, in reality, many hospitals still fail to meet these established waiting time standards (Sari et al., 20210).

Hospital X is a type B general hospital, established in 1997 and located in the central area of Margajaya, Bekasi. The hospital serves as a primary destination for patients under the National Health Insurance/*Jaminan Kesehatan Nasional* (JKN) program seeking healthcare services. Based on preliminary observations conducted by the author, BPJS Kesehatan patients frequently experience delays in prescription service waiting times at the hospital's pharmacy department. This is largely due to the disproportion between the high volume of prescription queues for BPJS Kesehatan patients and the limited human resources available in the pharmacy unit. Pharmacists and pharmaceutical technical staff are required to dispense medications in accordance with Standard Operating Procedures (SOPs) (Larasati & Nurmawaty (2022). to minimize potential risks. As a result, various stages in the prescription review and dispensing process—such as verification, packaging, and distribution—become more time-consuming. Consequently, many patients, after waiting for an extended period, submit complaints and suggestions to the staff (Reslina et al., 2021).

The considerably long waiting times need to be evaluated in relation to the hospital pharmacy's minimum service standards, which are crucial for achieving national quality indicator targets in hospitals. In light of these issues, the author is interested in conducting research to evaluate the outpatient prescription service waiting times for BPJS Kesehatan patients at X Hospital's Pharmacy Installation. The goal is to improve service quality and ensure pharmaceutical services are delivered according to established standards.

2. Methods

This study employs a mixed methods approach with an explanatory sequential design. This design involves a combination of quantitative and qualitative data collection and integration, which provides a more comprehensive understanding than using a single approach in formulating the research problem (Creswell, 2017). The data collection began with gathering quantitative data in the first phase, consisting of outpatient prescription waiting times for BPJS Kesehatan patients at the X Pharmacy Installation during March 2023, involving 100 prescriptions. In this first phase, the author conducted direct observations in the outpatient unit by measuring the prescription waiting times using a timing device and recording the duration, starting from when the patient submitted their documents until the medication was fully prepared. Data collection was conducted using sampling, which involves selecting a portion of the population to represent the entire population. Based on the prescription data received in March 2023, the total number of prescriptions for JKN patients was recorded as 16,085. Therefore, the sample size for this study was determined using the Slovin's formula, as follows:

$$n = \frac{N}{1 + Ne^2} \quad (\text{Eq. 1})$$

Where n represents the minimum sample size, N denotes the population size (which is the total number of outpatient BPJS Kesehatan patient prescriptions recorded in March 2023), and e refers to the margin of error, set at 10% (or 0.1). The second phase involved qualitative data collection through interviews with five informants working at the X Installation, conducted. Thus, the formula applied is as follows:

$$\begin{aligned} n &= \frac{16,085}{1 + (16,085)(0.1)^2} \\ n &= \frac{16,085}{1 + (16,085)(0.01)} \\ n &= \frac{16,085}{1 + 160.85} \\ n &= \frac{16,085}{161.85} \\ n &= 99.38 = 100 \text{ Samples} \end{aligned} \quad (\text{Eq. 2})$$

2.1 Data processing

In the first phase, the quantitative data obtained by the author through observation and measurement at the outpatient pharmacy installation for BPJS Kesehatan patients consisted of prescription waiting times from March 2023. This data included waiting times, targeted clinics, patient gender, and age. The author processed the data by compiling the waiting times into Microsoft Excel tables. The data was then organized according to the targeted clinics and the time periods of prescription services. From these tables, the overall average waiting time for BPJS Kesehatan patients was calculated per clinic and per time period. Subsequently, the author calculated the percentage of prescription waiting times that met the established standards as well as those that did not.

In the second phase, the author conducted interviews and collected responses to the questions posed. The questions were structured using an input-process-output approach. For the input section, the questions focused on topics such as human resources, facilities and infrastructure, service schedules, and completeness of documentation. In the process section, the questions addressed the prescription service workflow, factors affecting service time, peak activity periods, and obstacles encountered during service delivery. For the output section, questions were related to knowledge of the standard prescription service waiting times, challenges faced, impacts, and consequences of failing to meet the standards. The collected responses were then further analyzed in conjunction with the results obtained in the first phase. In-depth interviews for this qualitative study were conducted with five informants, consisting of one head of the Pharmacy Installation and four staff members of X's Pharmacy Installation. The characteristics of these informants are presented in Table 1 below.

Table 1. Characteristics of research informants

Informants	Age	Gender	Period of service	Position
Informant 1	41	Female	10 Years	Pharmaceutical Technical Personnel
Informant 2	40	Female	10 Years	Head of Hospital Pharmacy Installation
Informant 3	37	Female	7 Years	Pharmacist in Charge
Informant 4	29	Female	10 Years	Pharmacist Assistant
Informant 5	27	Male	9 Years	Pharmaceutical Technical Personnel

2.1 Data analysis

In the approach used in this study, the author separates the analysis of quantitative and qualitative data sets. The quantitative data results serve as a basis for planning the subsequent qualitative phase (Creswell, 2017). In the first phase, the author conducted quantitative research on the outpatient prescription waiting times for BPJS Kesehatan patients at the X Installation, followed by analysis to obtain an overview that would be used in the second phase. The second phase consisted of qualitative research through interviews structured around input, process, and output components, which provided insights into the factors causing prescription waiting times to fall below the minimum service standards. The qualitative findings were then analyzed to produce a final interpretation. The author employs a mixed methods approach to obtain a more complete and comprehensive understanding. In this context, qualitative data is expected to provide deeper insights and complement the quantitative findings. Therefore, in the interpretation of results, the discussion should thoroughly explain how the qualitative data contributes to expanding or enriching the quantitative findings (Creswell, 2017).

3. Results and Discussion

3.1 Evaluation of outpatient prescription waiting time compliance for national health insurance at the X pharmacy installation

Based on the research conducted over a one-month period, a total of 100 prescriptions were collected, all of which were non-compounded prescriptions for BPJS Kesehatan patients at the X Installation. The findings indicate that a significant number of these prescriptions did not meet the waiting time standards. Specifically, the minimum service standard for waiting time for non-compounded prescription services is ≤ 30 minutes, as regulated by the Indonesian Ministry of Health Regulation No. 129/Menkes/SK/II/2008 concerning the Minimum Service Standards for Hospitals (Kementerian Kesehatan RI, 2008).

Table 2. Scope of compliance with waiting time for non-compounded prescription services based on Indonesian Ministry of Health Standards

Criteria	Total	Percentage (%)
Compliant (≤ 30 Minutes)	2	2%
Non-compliant (> 30 Menit)	98	98%

As shown in Table 2, out of the 100 prescriptions observed, only 2 prescriptions (2%) complied with the standard waiting time. Meanwhile, 98 prescriptions (98%) exceeded the waiting time standard for non-compounded prescriptions as stipulated in the Indonesian Ministry of Health Regulation No. 129/Menkes/SK/II/2008 concerning the Minimum Service Standards for Hospitals. According to Indonesian Ministry of Health Regulation No. 129/Menkes/SK/II/2008 concerning Minimum Service Standards for Hospitals, the waiting time for prescription service is measured from the moment the patient submits the prescription until they receive the medication. Roselina et al. (2021) describe the outpatient prescription service process at the Pharmacy Installation as consisting of three stages: first, the waiting activity, which is measured from the patient's arrival at the pharmacy until the completion of the waiting period; second, the medication processing activity, which begins when the prescription is received at the counter and continues through medication packaging; and third, the medication delivery activity, which includes providing explanations about the medication and handing it over to the patient (Roselina et al., 2021). In practice, BPJS Kesehatan patients at the X Installation often leave their prescriptions due to prolonged waiting times and return to pick them up at specific times on the same or later days. Therefore, this study does not include the medication delivery time—the time until the patient receives the medication—as part of the waiting time, in accordance with Regulation No. 129/Menkes/SK/II/2008 and previous research.

Table 3. The waiting time for non-compounded prescription service

Events	Min	Max	Mean
Pricing	0:02:00	3:13:00	1:27:03
Packaging	0:03:00	1:12:00	0:23:52
Total Time	0:15:00	3:32:00	1:50:55

Based on the data presented in Table 3, the longest waiting time for non-compounded outpatient prescription services under BPJS Kesehatan reached 3 hours and 32 minutes, with an average waiting time of 1 hour and 50 minutes. The stage that consumed the most time was the prescription assessment process, with an average duration of 1 hour, 27 minutes, and 3 seconds, and the longest recorded time being 3 hours and 13 minutes. Meanwhile, the packaging stage took significantly less time, with an average of 23 minutes and 52 seconds and a maximum of 1 hour and 12 minutes.

Table 4. Number of prescriptions by clinic

Clynic	Amount
Pediatric	4
Surgery	14
Dental	3
Cardiology	6
Ophthalmology	8
Pulmonary	7
Internal Medicine	48
Neurology	5
ENT	5
Total	100

Based on the data collected during the research conducted at the Outpatient Department for BPJS Kesehatan patients at IFRS X, a total of 100 prescriptions were gathered from various outpatient clinics. These included four prescriptions from the pediatric clinic, 14 from the surgery clinic, three from the dental clinic, six from the

cardiology clinic, eight from the ophthalmology clinic, seven from the pulmonary clinic, 48 from the internal medicine clinic, five from the neurology clinic, and five from the ENT clinic. The distribution is shown in Table 4.

Fig. 1 illustrates the waiting times for prescription services by clinic department. The chart shows the longest waiting times occurred in ophthalmology prescriptions, with a waiting time of 210 minutes (3 hours and 30 minutes), and internal medicine prescriptions, with 212 minutes (3 hours and 32 minutes). Conversely, the shortest waiting times were observed in pediatric prescriptions, with a duration of 51 minutes. Additionally, the highest average waiting time was found in dental clinic prescriptions, with 160 minutes (2 hours and 40 minutes). Therefore, based on the data presented in Fig. 1, improvements are needed in the BPJS outpatient prescription services in order to reduce the medication waiting time.

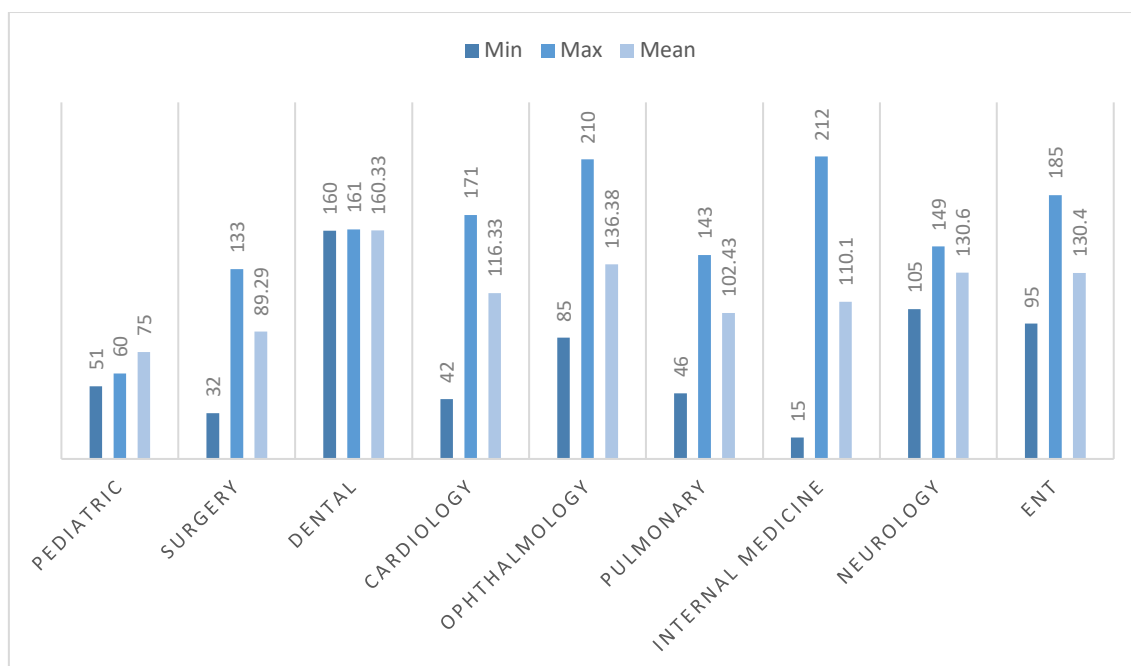


Fig. 1. Service waiting time for non-compounded prescriptions by outpatient clinic

Previous studies have shown different results. According to the study by Meitasari et al. (2022), the pediatric clinic had the longest prescription waiting time compared to other departments, with an average of 78 minutes. The longer waiting time for pediatric prescriptions was due to the fact that most prescriptions from the pediatric clinic were compounded, which required more time to prepare (Meitasari et al., 2022). This finding is supported by Puspita et al. (2018), who found that prescription accumulation occurred in the pediatric clinic, leading to longer waiting times. This was attributed to the compounding process, which not only involves preparing the medication but also includes dose calculations and manual compounding (Puspita et al., 2018). The difference in findings compared to the present study is likely due to differences in sample selection, as this study only included non-compounded (ready-to-dispense) medications, which do not require compounding time. According to Damayanti et al. (2020), prescriptions that involve compounded medications take significantly longer to process than prescriptions containing ready-to-use medications (Damayanti et al., 2020).

3.2 Factors contributing to non-standard waiting times in outpatient prescription services for national health insurance patients at X hospital pharmacy department

As discussed previously in the evaluation of prescription service waiting times, it was found that the waiting time for non-compounded prescriptions exceeded the standard set by Regulation of the Minister of Health No. 129/Menkes/SK/II/2008. Based on

observations and in-depth interviews with five informants, several factors were identified as contributing to the non-compliance with the standard waiting times in BPJS outpatient prescription services at the Pharmacy Department of X Hospital. In this study, the author categorized the factors contributing to non-standard waiting times based on the results of observations and in-depth interviews with five informants. Three groups of factors were identified: input (including human resources, facilities and infrastructure, standard operating procedures, and doctors' practice hours), process, and output.

3.2.1 Input factors

Based on observations and interviews, human resources were identified as one of the main factors affecting the long waiting times for BPJS Health patient prescription services at the Pharmacy Department of X Hospital. All five informants interviewed shared the same opinion regarding the insufficient number of human resources in the BPJS Health pharmacy unit, which was not proportional to the number of patients or prescriptions received. According to Kristinanto (2018), a shortage of human resources can hinder the speed of service delivery to patients and increase queue lengths within a system (Kristinanto et al., 2018).

Observations also showed that the lack of human resources led staff to perform multiple tasks simultaneously when handling prescriptions. This finding aligns with the study by Haifa and Resni (2018), which analyzed waiting times for outpatient prescription services at the pharmacy unit of Hospital X (Haifa & Resni, 2018). Therefore, the number of pharmaceutical personnel in a hospital pharmacy significantly influences the efficiency of prescription services at that unit (Priyoherianto & Rahadiano, 2021). Informants generally agreed that the number of pharmacy staff was insufficient compared to the high volume of prescriptions, which slowed down the service process (Informants 3, 4, 5).

According to Regulation of the Minister of Health No. 72 of 2016 concerning Standards of Pharmaceutical Services in Hospitals, the estimated need for pharmacists is based on the workload in pharmaceutical services, including managerial and clinical pharmacy services, which cover prescription review, medication dispensing, drug usage documentation, and patient counseling. Under ideal conditions, one pharmacist is required for every 50 patients (Kementerian Kesehatan RI, 2016). In addition to quantity, the knowledge of human resources also affects the efficiency of prescription services. According to Haifa and Resni (2018), in their study on outpatient prescription service waiting times at the pharmacy department of Hospital X, a lack of staff understanding regarding BPJS claims in the hospital pharmacy influenced the waiting time for services (Haifa & Resni, 2022). Based on observations and informant statements, specialized knowledge is required in processing BPJS Health prescriptions, as personnel must understand chronic and chemotherapy medications, the online pharmacy module, and the documentation requirements for patients.

Informants highlighted that processing BPJS prescriptions requires specific skills and knowledge, such as identifying chronic and chemotherapy medications, understanding how to navigate the online pharmacy module, reviewing patient medical history, and being familiar with medication restrictions and required laboratory results. A clear understanding of these aspects enables faster and more accurate data entry, ultimately improving service efficiency (Informant 1, 2). Another human resource factor is the staff's experience or length of service, which affects the efficiency of prescription services (Krisnanto et al., (2018). Based on the information provided, the factors contributing to non-standard waiting times in BPJS outpatient prescription services at X Hospital include an insufficient number of personnel, limited knowledge among staff in the prescription processing unit, and lack of experience. The more experience an individual has, the more efficient their performance tends to be.

Informants emphasized that handling BPJS prescription validation requires specialized knowledge and skills, including identifying chronic and chemotherapy drugs, navigating the online pharmacy system, reviewing patients' medical history, and understanding drug

restrictions and supporting laboratory requirements. This level of expertise directly impacts the accuracy and speed of data entry, which in turn affects the overall efficiency of service (Informant 1, 2). Another human resource factor is the staff's experience or length of employment, which significantly affects service efficiency. Based on the information obtained, the causes of prolonged waiting times in BPJS outpatient prescription services at X Hospital include an insufficient number of personnel, limited staff knowledge in the prescription validation process, and lack of work experience. The more experience an individual has, the more efficiently they are able to perform their duties (Susilowati et al., 2022). Informants noted that work experience contributes to faster and more accurate service, as staff with higher "flight hours" tend to be more familiar with prescription patterns, required medication quantities, and appropriate substitution options when needed. Experienced staff also tend to work more independently and efficiently without needing to frequently consult others (Informant 2, 3). Based on the discussion above, it was found that the factors contributing to non-standard waiting times in BPJS outpatient prescription services at X Hospital include an insufficient number of personnel, limited knowledge in the prescription validation process, and lack of individual experience or length of service.

3.2.1.2 Facilities and infrastructure

The prescription service process in the outpatient pharmacy unit at hospitals is greatly influenced by the availability of facilities and infrastructure, which in turn affects the efficiency of prescription services. According to Regulation of the Minister of Health No. 72 of 2016 concerning Standards of Pharmaceutical Services in Hospitals, facilities and infrastructure must be adequate in both quality and quantity to support pharmaceutical service tasks and processes, ensure a safe working environment for staff, and facilitate effective communication within the hospital system. Based on in-depth interviews with informants and observations regarding the facilities and infrastructure involved in the prescription service process for BPJS patients at the Outpatient Pharmacy Installation of X Hospital, it was found that there are still deficiencies in facilities such as compounding tables, medicine cabinets, and microphones, which hinder the efficiency of prescription services to patients.

The informants highlighted several facility-related issues impacting prescription services, including the need for additional medicine storage cabinets, insufficient compounding tables, and short or narrow work surfaces that limit the handling of multiple prescriptions. They also mentioned the lack of labeled cabinets to prevent medicine mix-ups, inadequate space for medication pick-up, and occasional microphone malfunctions (Informant 1, 2, 3, 4, 5).

In-depth interviews also revealed that the layout of the medication storage warehouse is located quite far from the BPJS Pharmacy Installation, which hinders the prescription service during the medication packaging process. When it is found that the prescribed medication is not available in the medicine cabinets, the packaging staff must first retrieve it from the warehouse, which requires a considerable amount of time (Amalia, 2021). Informants expressed concerns about the current medication storage being located in a separate building, which causes delays when medications are out of stock in the pharmacy cabinets. They suggested that having a dedicated warehouse within the same building would reduce the time spent retrieving medicines and prevent staff from making frequent trips between buildings (Informant 3, 4).

According to the informants, another factor hindering the prescription service is the hospital management system, *Hinai*, which relies on network signals and frequently experiences maintenance and errors. This finding aligns with Roselina et al. (2021), who reported in their study on outpatient pharmacy services that delays in medication waiting times were also caused by software and hardware malfunctions (Roselina et al., 2021).

Informants reported that the *Hinai* system, which is integral to hospital operations from registration to prescription processing, frequently experiences errors and

maintenance issues. These disruptions are often caused by poor network signals, leading to significant delays and frustrations. Staff usually inform patients via speaker when the system is down (Informant 1, 3, 4, 5). Based on the facility and infrastructure factors, it was found that the obstacles in the pharmacy installation for BPJS Health at X Hospital include an insufficient number of medicine cabinets and compounding tables, frequently malfunctioning microphones, as well as occasional errors and maintenance issues in the hospital management system.

3.2.1.3 Standard operating procedure

Based on observations and in-depth interviews at IFRS X, it was found that there is an established SOP related to prescription services. Specifically, for BPJS Health patients' prescriptions, there is a distinct difference in the input or validation process, which requires accessing an online module. According to Informant 2, all SOP procedures are the same for validation, dispensing, and packaging. The only difference in the prescription validation process is the need to access an online module; other steps remain unchanged.

Based on in-depth interviews with informants, it was also found that the SOP implementation by staff has been carried out in accordance with the established standards. According to Informant 4, the staff here are disciplined and their work follows the SOP. According to other informants and observational findings, there were discrepancies in SOP implementation regarding HTPK (Pricing, Weighing, Packaging, Dispensing), which should be documented by the staff but, in practice, has not been consistently fulfilled. According to Informant 2, the SOP requires that HTPK (Pricing, Weighing, Packaging, Dispensing) be documented with the responsible person's name, initials, and time. However, in practice, only initials are recorded, while names and times are often missing, which violates the SOP.

Based on the discussion above, although an outpatient pharmacy installation in a hospital already has established SOP procedures, monitoring and evaluation remain necessary. Monitoring aims to assess whether the implementation of activities complies with the established standards or if there are any changes in their execution. The results of monitoring can be used as a basis for making corrections or adjustments in subsequent activities. Evaluation is also crucial as it determines whether the tasks performed by staff conform to the SOP or if there are any obstacles during implementation. This highlights the importance of the monitoring and evaluation process so that the SOP can be adapted to the conditions and needs in managing prescriptions (Suryawati, 2020). Based on in-depth interviews with informants, it was found that X Hospital has been conducting regular evaluation and monitoring related to the SOP for outpatient pharmacy services for BPJS Kesehatan patients. Evaluations are generally carried out every six months or adjusted according to changes that require immediate SOP revisions.

"Usually, the evaluation is done every six months, so twice a year. However, if there are changes in the workflow or new mandates that require immediate updates to the SOP, evaluations can be conducted sooner." (Informant 2).

According to another informant, evaluations and monitoring have been conducted once or twice a month, or at most once every three months. Sometimes evaluations were conducted every two weeks or once a month. It never took as long as six months; the longest interval was about every three months. (Informant 3). According to the informant, monitoring is carried out directly by management through on-site visits to the Outpatient Pharmacy Installation for BPJS Health patients at X Hospital.

"The head of the installation usually comes down to supervise at BPJS, checking the daily response time and also asking about the waiting time." (Informant 3).

One important factor that a pharmacy installation must have is a Standard Operating Procedure (SOP) related to pharmaceutical services (Davis & Guerra, 2019). Without an

SOP, errors may occur during the prescription service process. These errors can lead to longer processing times, resulting in extended prescription service wait times (Suryawati, 2020). According to Hartono's study cited in Damayanti et al. (2020), SOPs serve as guidelines that help staff perform their duties in a consistent and proper manner (Damayanti et al., 2020).

3.2.1.4 Doctor's practice hours

According to research conducted by Miftahudin (2019), it was found that medication services for outpatient patients at hospitals that do not meet the Minimum Service Standards often occur during peak hours. These peak hours happen when most patients have already been examined by their doctors and given prescriptions, which are then submitted to the Pharmacy Installation (Miftahudin, 2019). This aligns with the findings of Haifa and Resni (2022), who revealed that the number of available outpatient clinics is a main reason for long waiting times, as the majority of available outpatient clinics lead to increased waiting times for prescription services (Haifa & Resni, 2022). Based on observations and in-depth interviews, the outpatient clinic schedule or doctors' practice hours affect the waiting time for prescription services. The large number of doctors practicing simultaneously and doctors' delays in starting their practice not according to schedule cause a backlog of prescriptions entering the Outpatient Pharmacy Installation for BPJS Health patients at X Hospital.

When many doctors are practicing at the same time, it means more prescriptions need to be prepared, especially if their schedules overlap with other patients. If a doctor is late, even by half an hour, it might not affect much, but delays lasting several hours significantly impact the pharmacy since it is the last step in the service process. Doctors arriving late cause longer waiting times at the pharmacy (Purwandari et al., 2017). For example, if five doctors practice simultaneously, each seeing around 30 patients, that results in about 150 prescriptions that can pile up at the pharmacy. Doctors arriving much later than their scheduled hours—sometimes even hours late—creates a major disruption and inconvenience for the pharmacy staff.

According to Informant 1, there are busy service times on Mondays, Tuesdays, and Wednesdays, as well as during night shifts for doctors' practice, which causes a backlog of prescriptions for the following day. This is supported by Informant 5, who mentioned that some doctors handling chemotherapy practice during night hours. Informant 2 noted specific days with increased prescription volumes, namely Monday, Wednesday mornings, and Friday afternoons. However, Informants 4 and 5 reported that the prescription volume has been increasing every day recently. According to the informants, night doctor shifts cause a backlog in medication pickup the following day. Busy days generally occur on Mondays, Wednesday mornings, and Friday afternoons, but recently, the number of prescriptions has increased almost every day, including Saturdays. Night shifts for chemotherapy doctors are one of the reasons certain days become particularly busy. Based on in-depth interviews and observations, it was found that the main factor causing waiting times to exceed the standard is the doctors' practice schedules. When multiple doctors practice simultaneously, along with inconsistencies in their schedules and certain specific days, the waiting time for prescription services tends to be longer or exceed the established standard.

3.2.2 Process factors

At the Outpatient Pharmacy Installation for BPJS Health at X Hospital, the process flow is as follows: patients who have completed their check-up come to the pharmacy and place their documents (SEP, lab results, or medication restriction sheets) on the provided tray. Then, the staff carries out the verification process, during which the prescription and medication label are printed. Next, the prescription and label are handed over to the packaging section through a service counter. In the packaging section, the medication is

prepared, compounded, and packaged. After the medication is ready, it is delivered to the dispensing section where the patient is called to receive their medication.

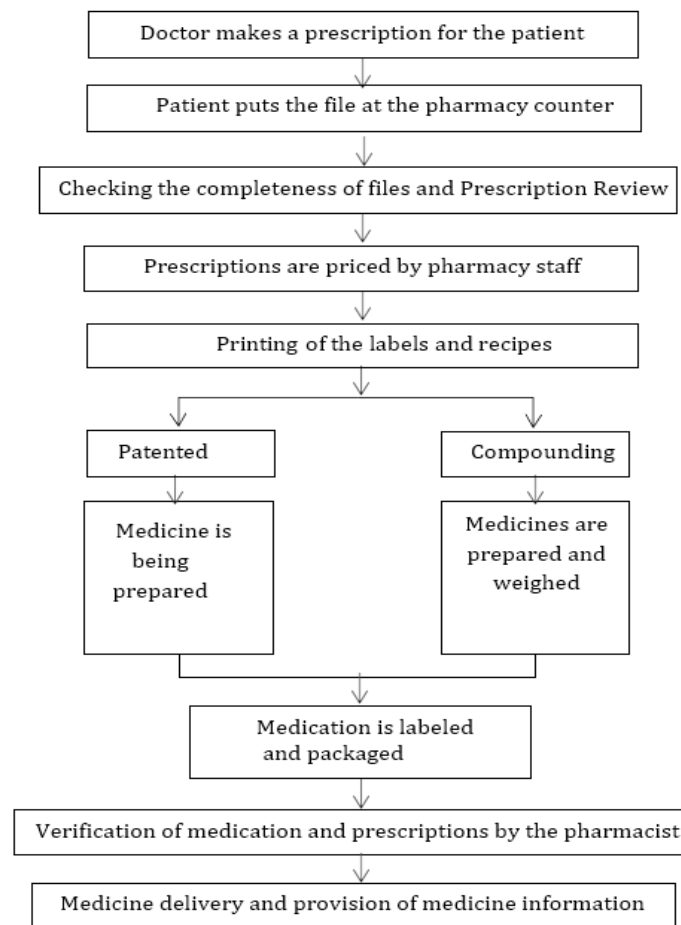


Fig. 2. Outpatient prescription service flow for BPJS Kesehatan at IFRS X

Based on the observation of Figure 2 showing the outpatient prescription service flow for BPJS Health at IFRS X, the prescription verification process has the greatest impact on the waiting time for prescription services. This is because the prescription service begins with this process, which then affects subsequent processes and ultimately influences the overall waiting time for the prescription service.

"...The verification part takes the longest. Since it's the frontline, it affects all the other parts..." (Informant 2).

When verifying prescriptions, if patient documents such as proof of completed medical procedures are incomplete, staff need to call the patient back to submit the required proof, which further delays the waiting time.

"...For example, chemotherapy patients come and submit their medical summary papers; they're supposed to attach the usual required documents, but often they don't..." (Informant 5).

According to another informant, another factor is the numerous system modules that must be accessed during data entry and checking the completeness of patient documents, which takes time for the staff. Additionally, Informant 4 stated that this process requires staff to confirm with the doctor if there are any discrepancies in the prescription. As a result, patient prescriptions pile up, causing longer waiting times for prescription services.

The longest part of the process is in the verification stage because for chronic and chemotherapy medications, staff need to carefully review patient data and eligibility, as well as check previous medication dates. The BPJS system requires accessing multiple applications and modules, which takes extra time, especially when patient data is incomplete or lab results are missing. This complexity often causes delays and may require more staff in the verification area. Additionally, if prescriptions don't match, staff must confirm with the doctor, which further extends the waiting time. Based on in-depth interviews, another obstacle in the medication handover process is patient discipline. Sometimes, when patients are called to receive their medication, they are not present. Later, these patients come back to complain that they were not called. Informant 5 stated that patient discipline also affects the waiting time for prescription services.

"...We call the patient when their medication is ready, but sometimes the patient isn't there. Then shortly after, a patient gets upset, saying they weren't called. So, patient discipline also affects the process..." (Informant 5).

According to another informant, all stages of the prescription service process affect the waiting time. Even if the verification stage is handled efficiently, delays can still occur in the packaging stage due to a backlog of prescriptions.

"In my opinion, all parts affect the process. For example, even if the front counter is fully staffed, if the packaging area only has one person, it will definitely cause delays in dispensing the medication..." (Informant 3).

Based on observations and in-depth interviews, it was found that all processes influence discrepancies in wait times compared to the standard. However, the initial process of prescription validation has the greatest impact, as it affects all subsequent steps.

3.2.3 Output factor

The prescription service standards at IFRS X refer to the Indonesian Ministry of Health Regulation No. 129/Menkes/SK/II/2008 concerning Minimum Service Standards for Hospitals. It states that the period from when a patient submits a prescription until they receive non-compounded medication should meet the minimum standard set by the Ministry of Health, which is ≤ 30 minutes, with a target achievement of 100%.

Based on observations conducted by the researcher over one month with a total of 100 prescriptions, only 2% of non-compounded medications were delivered within the maximum standard time of 30 minutes. Therefore, the waiting time for non-compounded medications at the Outpatient Pharmacy Installation for BPJS Health at X Hospital does not meet the hospital's minimum service standards, which requires a target of 100% compliance. According to informants, X Hospital faces difficulties in meeting the service standards due to the high number of doctor practices, shortage of pharmacy staff, and the unavailability of medications that require retrieval from the warehouse, which takes considerable time. These obstacles lead to a backlog of prescriptions.

"...There are a lot of patients here, but the staff is limited, and if the medicine stock runs out, we have to go get it from elsewhere..." (Informant 1).

"...In my opinion, it's difficult for the pharmacy in this building and the next one, because there are many doctors practicing, so it will be hard to meet the time standards..." (Informant 2).

The informants revealed that the mismatch between the waiting time at IFRS X and the established standards leads to many patient complaints, which negatively affects the quality of service and could impact the hospital's accreditation. Patients often complain and get

frustrated due to long wait times. This negatively impacts service quality and can affect the hospital's accreditation since waiting time is a key evaluation criterion.

In the context of outpatient pharmacy services, wait time is a crucial factor to ensure patients do not wait too long, which could negatively affect service quality. This study found that the wait times for both finished and compounded medications have not yet met the standards set by the Indonesian Ministry of Health Regulation No. 129/Menkes/SK/II/2008 concerning the Minimum Service Standards for Hospitals.

3.3 Strategies to improve wait time efficiency in outpatient prescription services for BPJS Kesehatan at IFRS X

3.3.1 Increase in human resources at the outpatient pharmacy installation (IFRS)

Based on in-depth observations and interviews, the most influential factor is human resources. In terms of quantity, IFRS X still needs to increase the number of personnel, especially in the BPJS Kesehatan pharmacy unit. Ensuring adequate staffing can help improve wait time efficiency. According to informants, adding more human resources is the top priority, considering the high patient volume that increases the workload in the BPJS Kesehatan pharmacy. Therefore, the recommended strategy is to increase the number of staff. The informants emphasized the importance of increasing the number of staff at the BPJS Health Pharmacy Installation in X. They stated that the large number of patients combined with insufficient staff is the main obstacle in the service process, so adding more human resources is considered the key strategy to improve waiting time efficiency. Other informants stated that the part needing additional human resources is the verification section, because the verification process and checking the completeness of patient documents require time and can affect the subsequent processes.

"...Many modules need to be opened, so more staff are needed in the verification section... the verification part takes the longest because it's the front line and influences the other sections..." (Informant 1).

However, Informant 3 expressed a different view, stating that the increase in human resources should be balanced across all processes, taking into account the number of patients and doctors' practice hours. Otherwise, there will still be a backlog of prescriptions in one part of the process, resulting in longer waiting times.

"Almost all parts need more staff, because if the verification section is adequately staffed but the packaging and compounding sections aren't, the process will get bottlenecked, delaying the release of medication for patient pickup. Likewise, if verification, packaging, and compounding are staffed well but only one person handles the dispensing, medications will pile up there. So, every section needs additional staff according to patient volume and doctors' practice hours." (Informant 3).

Informant 1 recommends a minimum staffing of four personnel for the verification section, two for packaging, and one for dispensing to achieve efficient prescription wait times at the BPJS Health Pharmacy Installation. However, Informant 5 suggests that, given the current conditions, the dispensing area should have two staff members, and the total minimum number of personnel in the pharmacy should be at least ten.

Based on the research by Islamiati (2020), the availability of a sufficient number of hospital human resources is crucial for achieving success in hospitals. Therefore, when calculating the need for pharmacy personnel, several factors must be considered, such as workload, the number of prescriptions served daily, the number of hospital beds available, and their utilization rate (Islamiati, 2020). In line with this, the Indonesian Ministry of Health Regulation Number 3 of 2020 concerning Hospital Classification and Licensing states that the number and qualifications of hospital human resources, including pharmacy staff,

are determined based on an analysis of workload, needs, and the hospital's service capacity (Kementerian Kesehatan RI, 2020).

Based on research conducted by Cahandriani (2019), it was found that to address the issue of limited pharmacy staff at the pharmacy installation, the pharmacy department had already submitted a request for additional personnel. However, this was not implemented because the pharmacy department was not considered a priority by the hospital (Cahandriani, 2019). Therefore, it is important for hospitals to accurately calculate their pharmacy staffing needs.

3.3.2 Adjustment of doctor's practice hours

Based on the results of observations and in-depth interviews, one of the obstacles identified related to human resources is the alignment of doctors' practice hours. According to the informants, delays in doctors' arrivals to provide services can affect the waiting time for prescriptions at the pharmacy due to a buildup of prescription orders. The informants also noted that such delays are particularly burdensome for the pharmacy unit, which serves as the final stop in outpatient services under BPJS Kesehatan.

Several informants highlighted the significant impact of doctors arriving late for their scheduled practice hours. One informant noted that while a short delay of around 30 minutes might not cause major issues, longer delays—sometimes stretching for hours—can severely disrupt the workflow, particularly in the pharmacy unit, which is the final stage in outpatient services. Another informant emphasized that whenever doctors are late, it is inevitably the pharmacy that bears the brunt of the delay. This issue was further illustrated by an example of a doctor who was scheduled to start at 8 a.m. but only arrived at 10 a.m., or was supposed to begin at 7 p.m. and didn't show up until 10 p.m.—delays that were described as extremely burdensome for pharmacy operations.

Based on the in-depth interviews and the discussion of the factors above, informants recommended that doctors adhere to their scheduled practice times. It is hoped that doctors' awareness and understanding of this issue will help improve the efficiency of prescription service delivery.

Tardiness is a form of employee indiscipline toward the regulations established by the organization. In a study conducted by Firdaus in Islamiati (2020), one of the obstacles identified related to human resources is the tardiness of doctors in providing services at the polyclinic. This causes a buildup of prescriptions from doctors at the same time. Prescriptions that arrive simultaneously increase the waiting time for patients to receive their medication. According to Suryana (2018) in Islamiati (2020), doctors' tardiness may be caused by a lack of supervision from hospital management (Islamiati, 2020).

In addition, according to WHO in Islamiati (2020), one way to improve services and reduce errors is by building an effective multidisciplinary team. An effective multidisciplinary team is one in which members communicate with each other and take responsibility to optimize patient care. In prescription services, the multidisciplinary team involved includes doctors and pharmacy personnel (Islamiati, 2020). In relation to this, if doctors arrive on time to provide services to patients, pharmacy personnel will also be supported in carrying out prescription services. As a result, prescription services can run smoothly.

3.3.3 Procurement of a dedicated warehouse for IFRS BPJS Kesehatan

The pharmacy warehouse is one of the facilities that supports prescription service activities in hospitals. According to Seto in Pratiwi et al. (2022), the pharmacy warehouse is the initial storage point for pharmaceutical supplies received from suppliers. These supplies are then distributed to inpatient units, outpatient units, and other hospital service units in need (Pratiwi et al., 2022). Based on observations and interviews, another factor affecting the waiting time for services is drug availability. At the BPJS Kesehatan pharmacy unit, drug stock is stored on a different floor and building. Due to limited space, they cannot stockpile

additional medications. Therefore, when a prescribed medication is out of stock at the pharmacy unit, staff must first retrieve it from the warehouse. Because the warehouse is located far away, staff do not retrieve just one medication but wait until there are multiple medications to be collected. This results in a backlog of prescriptions at the BPJS pharmacy unit. Several informants pointed out that the location and limited capacity of the pharmacy warehouse significantly impact the medication service process. When medications run out at the pharmacy and are only available in the warehouse located in a separate, distant building, it causes delays in serving patients. Due to the warehouse's distance, staff tend to wait until multiple medications are needed before making a trip, to avoid frequent back-and-forth trips. Additionally, the pharmacy's storage space is limited, preventing the possibility of keeping more stock on-site, which further contributes to service delays.

Based on the discussion above and interviews with informants, a strategy to improve the efficiency of prescription service time is the establishment of a dedicated warehouse in the IFRS building of BPJS Kesehatan. Having a dedicated warehouse will help reduce the waiting time for prescription services and prevent staff from spending excessive time repeatedly retrieving medication supplies from the warehouse. Informant 1 mentioned that while the service is generally fast, it depends on the availability of medication on-site and expressed the need for a dedicated warehouse in the current building. Informant 3 emphasized the necessity of having a warehouse in the same building because the current warehouse is located far away in the next building. When medication runs out in the cabinet, staff have to go to the other building to retrieve it, causing unnecessary back-and-forth trips.

This study found that stockouts of medications at the outpatient pharmacy unit can lead to longer waiting times for prescription services. This is because pharmacy staff must retrieve medications from the warehouse or other pharmacy units, such as inpatient or emergency units, which are located separately from the outpatient pharmacy. Disruptions in medication supply hinder healthcare services because medications are unavailable when needed. Interruptions in the medication supply chain will impact healthcare delivery due to the lack of stock when required (Damayanti et al., 2020).

In the study conducted by Maftuhah and Susilo (2016) as cited in Islamiati (2020), the cause of medication stockouts in the outpatient pharmacy unit is related to limitations in facilities and infrastructure supporting prescription services. According to the study, the narrow space and limited storage cabinets in the outpatient pharmacy unit result in medications having to be stored in the warehouse or other pharmacy units. Therefore, when the outpatient pharmacy unit needs those medications, pharmacy staff must first retrieve them from the warehouse or other pharmacy units (Islamiati, 2020).

According to Ministry of Health Regulation No. 72 of 2016 concerning pharmaceutical service standards in hospitals, the implementation of pharmaceutical services in hospitals must be supported by facilities that comply with applicable pharmaceutical regulations and laws. One of these facilities is storage, specifically warehouses, which must be integrated with the hospital's service system (Kementerian Kesehatan RI, 2016). According to Mulalinda in Poernomo (2019) as cited in Tetty and Bone (2020), Hospital Pharmacy Installations (IFRS) need to manage medications optimally. This effort aims to improve the quality of medication management services, especially in the storage phase, which affects the hospital's overall performance (Tetty & Bone, 2020). Based on the discussion above, it is understood that an effective warehouse layout also considers efficiency in managing medication inventory. By placing the medication warehouse close to the prescription service area, the procurement and retrieval process can be carried out quickly. This will ensure timely availability of medications for patients and reduce waiting times in prescription services.

3.3.4 Redesign of IFRS layout

Based on in-depth interviews with informants, strategies to improve waiting time efficiency in outpatient prescription services at BPJS Kesehatan's IFRS X were identified. In addition to increasing human resources, adjusting doctors' practice schedules, and

establishing a dedicated warehouse, other informants recommended that pharmacy posts be located on the same floor or in the same area to facilitate coordination among staff and improve prescription service efficiency. Observations at X Hospital revealed that the pharmacy installation is divided into several posts, including the executive pharmacy post, emergency room (ER) pharmacy post, BPJS pharmacy post, and others, all centered around the executive pharmacy installation on the third floor of building three. This division of the pharmacy installation hinders prescription services, particularly in terms of medication availability and the distribution of human resources.

"In my opinion, it would be better if all the pharmacy posts were consolidated on one floor. That way, both the executive pharmacy and BPJS pharmacy would be on the same level, making coordination much easier." (Informant 4).

According to Ministry of Health Regulation No. 72 of 2016 concerning pharmaceutical service standards in hospitals, facilities must be adequate in both quality and quantity to support the functions and processes of pharmaceutical services, ensure a safe working environment for staff, and facilitate hospital communication systems (Kementerian Kesehatan RI, 2016). This aligns with Subekti's opinion (2017) as cited in Tetty and Bone (2020), which states that improper placement and room arrangement can hinder services and extend waiting times (Tetty & Bone, 2020). A good and efficient layout in the IFRS can optimize workflow and prescription service processes.

Based on in-depth interviews with Informant 4, it was also found that an organized and effective layout in the IFRS can facilitate communication and coordination among doctors, pharmacists, and prescription service staff. For example, by placing their work areas close to each other, interactions and consultations between doctors and pharmacists can be easily conducted, speeding up the prescription verification process and medication-related consultations. Therefore, it is important for hospitals and management teams to plan and design the IFRS layout with consideration for operational efficiency, medication availability, and team communication. This will help improve prescription services and minimize patient waiting times.

4. Conclusions

The waiting time for outpatient prescription services at BPJS Kesehatan's IFRS X has not yet met the standards set by Ministry of Health Regulation No. 129/Menkes/SK/II/2008 concerning Minimum Service Standards for Hospitals. The study results showed that 98 prescriptions (98%) had a waiting time of more than 30 minutes, while 2 prescriptions (2%) had a waiting time of 30 minutes or less. The average time required by staff to process non-compounded prescriptions was 1 hour and 50 minutes, with a maximum waiting time of 3 hours and 32 minutes and a minimum waiting time of 15 minutes.

Factors causing the waiting time to fall below the standard in outpatient prescription services at BPJS Kesehatan's IFRS X were identified across several elements. Regarding input factors, human resources were considered the most influential, including issues such as insufficient staff numbers, heavy workloads, experience and length of service, as well as staff knowledge. In terms of facilities and infrastructure, inadequacies were found in the quantity and quality of equipment such as compounding tables, medicine cabinets, and the hospital information system (HIS) called Hinai, which occasionally experiences errors. The absence of a dedicated warehouse or storage area specifically for BPJS pharmacy supplies was also a contributing factor. Furthermore, doctor discipline and overlapping doctor practice hours also led to longer prescription service waiting times. In the process element, the lengthiest waiting time was found in the prescription verification process, which was identified as the most influential stage affecting overall prescription service time since the prescription service begins with this process and impacts subsequent steps. Regarding output, the study found that the waiting time for non-compounded prescription drugs did

not meet the established standards. This has led to many patient complaints, affected the hospital's quality of service, and impacted hospital accreditation.

Strategies to improve the efficiency of waiting times in outpatient prescription services at BPJS Kesehatan's IFRS X include increasing the number of human resources, adjusting doctors' practice hours, providing dedicated storage space for medication supplies such as a warehouse, and redesigning the IFRS layout so that pharmacy posts are located on the same floor or in the same area to facilitate staff coordination and improve prescription service efficiency.

Based on the conclusions presented by the author, several recommendations are proposed as considerations to improve services at the Pharmacy Installation. First, management should plan a workload analysis to determine the actual number of human resources needed. This aims to ensure that the staff size matches the workload, thereby achieving more efficient prescription service waiting times. Second, management should enhance supervision regarding doctors' practice hours and encourage doctors to adhere to their schedules to prevent prescription backlogs that cause service delays. Third, regular maintenance and inspections of the available facilities and infrastructure at the pharmacy installation should be conducted to ensure their optimal condition. Fourth, additional facilities and infrastructure required for prescription services, such as medicine cabinets and compounding tables, need to be provided to support effective service delivery.

Fifth, the hospital information system, Hinai, should undergo regular maintenance to prevent errors and be upgraded to the latest version to facilitate more efficient prescription input. Sixth, the pharmacy should expand or add dedicated storage space specifically for BPJS Kesehatan pharmacy supplies. This would minimize the need for staff to retrieve supplies from distant locations, reducing the time required. Seventh, informational tools such as banners or posters should be created in the pharmacy installation to explain the prescription service flow and required administrative documents. This aims to reduce repetitive questions from patients or their families, which can disrupt pharmacy staff concentration during prescription services. Finally, management should plan a redesign of the pharmacy posts' layout, considering operational efficiency, drug availability, and team communication. This could involve locating all pharmacy posts on the same floor or within the same area to facilitate staff coordination and improve prescription service efficiency, ultimately minimizing patient waiting times.

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