Analysis of Waiting Time for Medication Services in the Pharmacy Installation of Mesra Hospital

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Abstract

Hospital pharmacy services are an integral part of the healthcare system, playing a crucial role in ensuring the availability of appropriate, safe, and timely medications for patients. One indicator of pharmaceutical service quality is the waiting time for medication services, which directly impacts patient satisfaction and the hospital's image. The Mesra Hospital Pharmacy Unit continues to face issues with waiting times for medication services that do not fully meet standards, particularly during peak service hours. This study aims to analyze waiting times for medication services, identify contributing factors, and formulate recommendations for improvement based on field conditions. The study used a qualitative approach with a case study design. Data were collected through in-depth interviews with pharmacy staff and management, observations of service flows, and a review of secondary data from wait time quality reports for the July–September 2025 period. Root cause analysis was conducted using Fishbone Analysisto identify human factors, work methods, infrastructure, and service management. The results showed that long waiting times were influenced by an imbalance in staff workload, delays in prescription input, limited space and compounding equipment, inconsistent implementation of standard operating procedures (SOP), and patient congestion at certain times. In conclusion, improvements to the workflow and management of pharmaceutical services are needed to reduce waiting times and improve service quality at Mesra Hospital.

Keywords: Waiting Time For Drug Services; Hospital Pharmacy Installation; Quality of Service.

Introduction

Hospital pharmacy services are an integral part of the healthcare system responsible for providing appropriate, safe, and timely medications to patients (Lee H et al., 2019). Pharmaceutical facility performance is measured not only by drug availability but also by the efficiency of the service process, reflected in medication waiting times, an indicator of service quality (Al-Abri & Al-Balushi, 2014). Optimal medication waiting times will support clinical service quality, patient safety, and foster positive perceptions of the overall quality of hospital services (Srivastava et al., 2020).

Several international studies have shown that waiting times for medication services are closely related to patient satisfaction and treatment adherence (Lee H, Kim S et al., 2019). Wait times exceeding service standards tend to decrease patient satisfaction, increase complaints, and potentially impact the success of therapy and the hospital's image (Lee et al., 2020). Therefore, measuring and evaluating waiting times for pharmaceutical services is considered crucial for identifying process bottlenecks and opportunities for continuous operational improvement (Al-Abri & Al-Balushi, 2014).

In Indonesia, medication waiting time has been established as an indicator of the quality of hospital pharmacy services through the Minimum Service Standards (SPM) (Yunus, Wiryanyo & Yuandani, 2021). These standards set a waiting time limit of ≤30 minutes for non-prepared medications and ≤60 minutes for preparated medications as a benchmark for pharmacy performance (Wulandari et al., 2021). However, various national studies have shown that many hospitals still fail to consistently meet these waiting time standards, particularly during peak hours and in healthcare facilities with limited resources (Amiruddin & Alfreda, 2023).

Several factors reported to influence waiting times for medication services include limited numbers and competencies of pharmaceutical human resources, suboptimal service workflows, delays in prescription input by doctors, limited facilities and infrastructure, and inconsistent implementation of standard operating procedures (Rahayuningtyas et al., 2023). Other studies also confirm that a combination of human resources, service processes, and management factors plays a crucial role in determining the efficiency of hospital pharmacy services (Mulya et al., 2023; Wirajaya, 2022).

The Pharmacy Unit of Mesra Hospital, a private type D hospital, continues to face issues with waiting times for medication services, based on an internal quality report for the period July–September 2025. The data indicates that waiting times for both compounded and non-compounded medications do not fully meet national standards, particularly during peak hours (Yunus, Wiryanyo & Yuandani, 2021). Initial observations and interviews also indicated an imbalance in staff workload, delays in prescription input by doctors, limited space and compounding equipment, and variations in the implementation of pharmaceutical service SOPs that could potentially extend waiting times for medication services (Rahayuningtyas et al., 2023).

Based on the gap between pharmaceutical service standards, previous research findings, and the actual conditions of service at the Mesra Hospital Pharmacy Unit, an in-depth analysis is needed to identify the causes of delays in drug service waiting times and formulate recommendations for improvement tailored to local conditions (Wirajaya, 2022). Therefore, this study aims to analyze drug service waiting times at the Mesra Hospital Pharmacy Unit, identify the factors causing service delays, and develop recommendations for improvement to enhance the quality of pharmaceutical services and patient satisfaction (Shulihah, 2024).

Theoretical Review

Problem Solving Cyle

Problem solvingis a process for solving problems in everyday life. According to Jonassen (2000), problem solving is a complex cognitive process that requires individuals to apply relevant knowledge and strategies to understand and resolve problems effectively. In the context of healthcare services, particularly pharmaceutical services, problem solving plays a crucial role in improving service quality and patient satisfaction. Jonassen (2011) explains that problem solving is a complex cognitive process that requires individuals to analyze real-world problems, integrate prior knowledge, and make informed decisions within specific contextual constraints. In pharmaceutical practice, this process is reflected in how pharmacists and healthcare staff identify service bottlenecks, manage prescription workflows, and respond to patient needs effectively. Furthermore, Wijayanto and Rusgianto (2018) state that problem solving is an instructional approach that trains individuals to think creatively and systematically through predetermined stages, such as problem identification, strategy formulation, implementation, and evaluation. Applied to pharmaceutical services, this structured problem solving approach enables healthcare professionals to address issues such as long waiting times, medication errors, and service inefficiencies in a more effective and sustainable manner. Therefore, problem solving is not only a cognitive skill but also a strategic approach to enhancing the performance and quality of pharmaceutical service delivery.

Problem Solving Cycle (PSC) is a managerial framework used to systematically identify, analyze, and solve problems within an organization. PSC emphasizes an evidence-based approach (evidence-based decision making) through cyclic and iterative stages, so that each implemented solution can be evaluated, adjusted and improved continuously.

Conceptually, PSC begins with problem identification, which involves uncovering gaps between actual conditions and expected performance standards. The next stage is root cause analysis, which aims to identify underlying causes using analytical methods such asroot cause analysisor analysis multidomain (Human–Organizational–Technology). After the root of the problem is identified, alternative solutions are formulated and selected feasible and in accordance with organizational resources. Next, the selected solution is implemented through the planning and implementation phases of the intervention, which require cross-unit coordination, resource allocation, and management support. The final phase is monitoring and evaluation, where the effectiveness of the intervention is measured through performance indicators to ensure the desired improvements are achieved. The evaluation results then form the basis for the next cycle, making PSC an adaptive approach oriented toward continuous quality improvement.

Hospital Pharmacy Services

Pharmaceutical services are integrated activities aimed at identifying, preventing, and resolving drug and health-related issues (Sallom et al., 2023). Hospital pharmaceutical services aim to ensure that medications are available, safe, and appropriately used, and support successful patient therapy. Within the framework of quality management, pharmaceutical facilities must also consider the speed of drug distribution as part of clinical services. According to Regulation of the Minister of Health of the Republic of Indonesia Number 72 of 2016 concerning Pharmaceutical Service Standards in Hospitals, pharmaceutical services aim to ensure the quality, safety, efficacy, and affordability of drugs and to increase the effectiveness of patient therapy (Permenkes, 2016).

Pharmaceutical services encompass two activities: managerial activities, such as managing drugs and consumable medical supplies, and clinical pharmacy services. These activities must be supported by human resources, facilities, and infrastructure (Ghibu et al., 2021). Pharmaceutical services play a role in increasing rational drug use, which will determine the success of treatment (Ari Sulistyawati, 2019). The role of pharmacists is now evolving toward patient-oriented services (patient-oriented care), not merely administrative. In this context, the pharmacy unit is the spearhead, directly touching patients and influencing perceptions of service quality. Therefore, evaluating workflow and waiting times in the pharmacy unit is crucial for improving hospital healthcare services. Furthermore, the implementation of information technology, such as the Hospital Management Information System (SIMRS), also plays a crucial role in accelerating the prescription validation and medication recording processes.

Concept of Waiting Time for Drug Services

The waiting time for medication service is defined as the interval from when the prescription is handed in until the patient receives the medication. This indicator reflects the dimension responsiveness in the quality of health services, namely the speed in responding to patient needs (Lee et al., 2019). Several factors that influence the length of waiting time for outpatient prescription services include a lack of human resources (HR), lack of HR competency, unresolved service process flows, and incomplete SOPs for prescription services. This is due to a lack of socialization and unclear division of tasks, and limited supporting facilities and infrastructure that are inadequate (Amiruddin & Alfreda, 2023). Research conducted by Yustina states that the length of waiting time is influenced by the type of prescription, the number of medication items per prescription, the outpatient clinic schedule, human resources, facilities and infrastructure, and drug availability (Yustina et al., 2025). The results of the study indicate that the number of human resources, doctor's prescription errors, facilities and infrastructure, staff behavior, and drug stock availability are all factors that contribute to long waiting times (Rahayuningtyas et al., 2023). Meanwhile, research by Made Krisna (2018) explains that the problem of long waiting times is caused by human resources, methods, and management factors. Hospitals need to pay attention to these factors so that they can maintain the quality of hospital services (Shulihah. 2024).

Studies by Lee et al. (2020) and Kim et al. (2018) show that as waiting times increase, patient satisfaction levels tend to decline. In Indonesia, national standards set a maximum waiting time for non-compounded medications of $\leq$ 30 minutes and for compounded medications of $\leq$ 60 minutes (Yunus et al., 2021). However, research shows that many pharmacy

facilities still exceed this limit for example, the average waiting time for compounded medications in one hospital reached 65.71 minutes (Yunus et al., 2021). This indicates an urgent need to evaluate pharmacy workflows. Furthermore, the implementation of information technology, such as the Hospital Management Information System (SIMRS), also plays a crucial role in accelerating the prescription validation and medication recording process (Saputri, 2025).

Factors Affecting Waiting Time for Drug Services

Several studies in Indonesia have identified that internal factors such as the number of pharmaceutical human resources, the competence of pharmacists, and the layout of the workspace significantly influence waiting times (Mulya et al., 2023). Good drug services must meet the principles of the right patient, the right drug, the right dose, the right method, and the right time. (Kuntarti, n.d.). The quality of drug services is measured not only by speed, but also by accuracy and patient safety. Inefficiencies in the drug service flow will increase waiting times and decrease patient satisfaction with pharmaceutical services (Fadilah, 2022). Furthermore, external factors such as the number of daily prescriptions, payment type (e.g., BPJS), and the number of medication items in a prescription have also been shown to be associated with waiting times. Furthermore, the application of information technology, such ase-prescription also shows the potential to significantly reduce waiting times. Therefore, waiting time analysis must include process, human resource, and technology aspects in the integration of pharmaceutical service systems.

Pharmaceutical Service Quality Indicators

In the framework of service quality, waiting time is included as an indicator responsiveness which indicates the speed of service to patients (Parasuraman, Zeithaml & Berry, 1988). Other indicators that are also used to measure service quality in pharmaceutical services include the accuracy of drug administration, drug availability, and patient satisfaction (Nurmiwiyati et al., 2020). The SERVQUAL model is used as an approach to measuring service quality based on five dimensions: tangibles, reliability, responsiveness, assurance, And empathy (Saputra et al., 2025). In the context of pharmaceutical services, waiting time is included in the dimension responsiveness, because it shows the ability of pharmaceutical personnel to provide services quickly and responsively to patient needs (Suci & Herliza, 2025).

Nurmiwiyati et al. (2020) showed that increasing the speed of pharmaceutical services resulted in an 85% increase in patient satisfaction. Furthermore, Wulandari S et al., (2025) found that even though waiting times for pharmaceutical services at a hospital were within standard limits, 31% of patients still complained about long queues. This suggests that waiting time is not a standalone indicator but is closely linked to the overall patient experience. Conversely, long waiting times can lead to negative perceptions and reduce patient loyalty (Prisusanti, 2024).

Methods

This This study employed a qualitative research design using a case study approach to analyze medication service waiting times and the factors influencing them at the Pharmacy Unit of Mesra Hospital. The case study approach was selected because the research focused on a single service setting with specific operational characteristics, enabling an in-depth understanding of the actual conditions of pharmaceutical services. The study was conducted in October 2025, with the location and timeframe chosen based on the availability of verified service quality data and their relevance in reflecting real service performance.

Research informants were selected through purposive sampling, targeting individuals with direct involvement and sufficient understanding of pharmaceutical service processes. The informants consisted of a key informant, namely the Head of the Pharmacy Installation, who possesses comprehensive authority and insight into pharmaceutical service management, and a primary informant, a pharmacist actively involved in daily medication services. Data were collected through direct observation of service processes, in-depth interviews to explore factors contributing to service delays, and document review, including service quality reports, standard operating procedures, and other relevant records.

Qualitative data analysis was conducted through data reduction, data presentation, and conclusion drawing. To identify the root causes of prolonged waiting times, a Fishbone Analysis was applied, categorizing causal factors into human resources, work methods, infrastructure, and service management aspects. Data validity was ensured through triangulation of sources and methods by comparing findings from observations, interviews, and documentation, thereby strengthening the credibility of the study results.

Results and Discussion

Based on direct observations at the Mesra Hospital Pharmacy Unit, in-depth interviews with pharmacists and management, and a review of pharmaceutical service quality documents, it was discovered that waiting times for medication services at Mesra Hospital are still suboptimal. Relatively long wait times were found primarily for compounded medication services and during peak hours after the end of the outpatient clinic. This situation led to a build up of patients in the pharmacy waiting area and increased complaints regarding the length of medication service.

Interviews with pharmacists revealed that high workloads and limited staff during peak hours are among the main causes of long wait times for medication services. The surge in simultaneous prescriptions results in backlogs in prescription verification, compounding, and dispensing. One pharmacist explained, "When clinic hours are over, prescriptions come in almost simultaneously. Especially if there are multiple prescriptions, the staff becomes overwhelmed, and the process takes longer."

An interview with the Head of the Pharmacy Unit revealed that waiting times for medication services are affected by an imbalance between the number of prescriptions received and the availability of pharmaceutical human resources. The head of the unit stated that the division of tasks among staff has not fully aligned with the actual workload, resulting in a backlog of work for a few staff at certain times. This was reflected in the informant's statement, "The division of tasks is not entirely based on workload, so during peak hours some officers have a pile of work."

Interviews with senior pharmacists revealed that waiting times for medication services are not routinely and systematically monitored. Wait time evaluations are generally conducted through periodic quality reports, but this is not accompanied by direct feedback or operational follow-up to pharmacists. The pharmacist stated,"Usually, evaluations are only conducted through reports. There are no regular discussions to determine why wait times are long on certain days."

Key informants reported that standard operating procedures (SOP) for pharmaceutical services related to the flow and timing of medication administration have not been fully updated and disseminated comprehensively. Consequently, medication administration still relies on individual staff work habits, particularly during busy service environments. Hospital management stated, "Pharmacy services are still under development. SOP need to be updated, and wait time monitoring needs to be strengthened to ensure consistent service."

Based on these findings, several key issues were identified: 1) long waiting times for medication services, 2) incomplete medical records, and 3) a relatively lengthy administrative registration process. Furthermore, problem priorities were analyzed using the USG (Urgency, Seriousness, Growth) method. The weighting results indicated that long waiting times for medication services were a priority issue that needed to be addressed immediately because they directly impacted service quality and patient satisfaction.

After the problem priorities are determined, a root cause analysis is carried out using the approach. fishbone analysis to describe the causes of problems based on time factors, human resources (man), working method, materials, and management. The results of this analysis form the basis for formulating alternative solutions to problems and compiling Plan of Action (PoA) at a later stage.
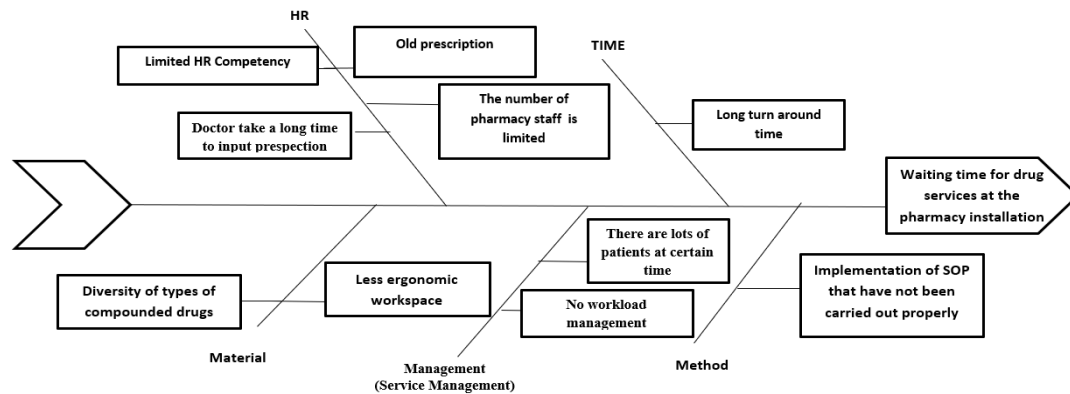
Diagram Fish Bone

Figure 1. Fish Bone Analysis

Table 1. Alternative Problem Solving

Problem Category (Fishbone)	Cause of the Problem	Alternative Problem Solving
Man (HR)	• The number of pharmacists and TTK is not commensurate with the high workload • Limited HR competency • The process of reconfirming old prescriptions is hampering • The doctor was slow in inputting the prescription.	• Determination of clear job descriptions according to workload • Dispensing efficiency and rapid compounding training • Determining clear job descriptions and dividing shifts according to workload • Enforcement of prescription input disciplinereal-time
Time	• Long turnaround time	• Implementation of digital queuing and priority systems and standardizing service times
Method (Working method)	• Implementation of SOP has not been carried out properly	• Revision and socialization of pharmaceutical service SOP • Conduct regular disciplinary supervision
Materials (Equipment)	• Less ergonomic workspace • The diversity of types of compounded drugs means that the processing time is long.	• Re-layout the mixing room to make the flow more efficient and ergonomic • Implementation of formulary to limit formula variations
Management (Service Management)	• Patients are crowded at certain hours • No workload management	• Peak hour shift scheduling • Daily/weekly evaluation of waiting time indicators • Program continuous quality improvement (CQI)

Man (Human Resources)

Based on interviews and observations, human resources (HR) are the dominant factor contributing to long waiting times for medication services at the Mesra Hospital Pharmacy Unit. The number of pharmacists and pharmaceutical technicians available is not commensurate with

the workload, particularly during peak hours after the clinic closes. This situation leads to a backlog of work at the prescription verification, compounding, and dispensing stages, resulting in longer waiting times. This finding aligns with research by Susanto, Mansur, and Djauhari (2017), which states that the mismatch between staffing needs and workload in the pharmacy unit directly impacts service efficiency and patient waiting times.

In addition to the number of staff, limited human resource competency is also a factor affecting the length of medication service times. Interviews revealed that not all staff possess the same ability to dispensed efficiently or compound medications quickly and accurately. This variation in competency leads to differences in work speed among staff and increases the variation in wait times for medication service.

Unclear division of tasks and responsibilities that is not fully based on actual workload contributes to lengthening service wait times. Some officers must handle more than one service stage simultaneously, increasing the risk of fatigue, reducing work focus, and impacting service speed. This situation is reinforced by research by Syahrizal, Hidayati, and Waliamin (2023), which states that suboptimal workload and shift management significantly impact employee performance. Furthermore, the lengthy prescription reconfirmation process and delays in real-time prescription input by doctors contribute to the burden on pharmacists. When prescriptions are entered simultaneously at a specific time, pharmacies must process a large number of prescriptions simultaneously, which directly increases wait times for medication administration.

Based on these issues, alternative solutions to the human resources aspect focus on establishing clear job descriptions and workload-based task allocation, adjusting shift allocations according to peak service hours, and improving human resources competency through training on dispensing efficiency and rapid compounding. Furthermore, enforcing disciplined real-time prescription input by doctors is a crucial step to prevent prescription backlogs and support more proportional pharmacy workload management. Implementation of this strategy is expected to improve the performance of pharmaceutical human resources, accelerate service flow, and reduce waiting times for medication services at Mesra Hospital.

Time

Time is a crucial component of pharmaceutical service quality because it directly impacts patient experience and satisfaction. Research shows that long waiting times for medication services at the Mesra Hospital Pharmacy Unit are influenced not only by the number of staff and workflow, but also by the suboptimal management of standardized service times. During peak hours, prescriptions tend to come in simultaneously, leading to a backlog in the verification, compounding, and dispensing processes, which increases patient waiting times.

One of the solutions formulated in Plan of Action is the implementation of a digital queuing system integrated with polyclinic services and pharmacy installations. The digital queuing system allows for more controlled service sequences and provides a predictive view of the number of prescriptions to be processed. Furthermore, the implementation of a service priority system, such as separating queues for non-compounded, simple, and complex prescriptions, can help pharmacies manage service time more effectively and proportionally according to the level of work complexity.

Research by Variza (2025) shows that the implementation of an application-based Hospital Management Information System (SIMRS) significantly accelerates service processes and administrative management, including controlling workflow and service times. Optimizing SIMRS allows for more real-time processes, reduces workload, and improves service timeliness.

Method (Working Method)

The study results indicate that the implementation of standard operating procedures (SOP) for pharmaceutical services at Mesra Hospital has not been consistent, particularly regarding service flow and standard drug delivery times. In busy service conditions, staff tend to adjust work processes based on habits and field conditions, resulting in variations in prescription completion times. This aligns with the Hospital Pharmacy Services Guidelines (Directorate General of Health Services, 2019), which emphasize the importance of SOP as a standard service standard. Research by Sari (2020) also states that the existence of clear and well-socialized SOP can

improve the consistency and quality of services because healthcare workers have uniform work guidelines.

Material

Aspect material this study examines the condition of pharmaceutical service facilities and infrastructure, particularly the workspace and drug compounding process. Based on field observations, it was discovered that the layout of the compounding room in the Mesra Hospital Pharmacy Installation is not yet fully ergonomic and efficient. The disorganized placement of work tables, drug shelves, and compounding equipment requires staff to make additional movements during the compounding process, thus prolonging prescription processing time and directly impacting the waiting time for drug services. This condition is not in line with the Technical Guidelines for Hospital Pharmacy Facilities and Infrastructure issued by the Ministry of Health of the Republic of Indonesia, which emphasizes that the design of the pharmacy room must support an effective, safe, and ergonomic workflow in order to increase service efficiency and minimize wasted time and energy.

In addition to spatial planning, the diversity of compounded medications is also a material factor affecting service times. Variations in formulations with varying levels of complexity result in inconsistent processing times and increase staff workloads, especially during peak hours. Each compound requires different preparation steps and processing times, potentially lengthening the queue for medication services. This finding is in line with research by Rulianti, Dinta, and Simamora (2024) which shows that compounded prescriptions have longer waiting times than non-compounded prescriptions, especially in hospitals with a high volume of compounded prescriptions.

Based on these problems, alternative solutions to the material aspect are focused on implementation re-layoutmixing room to make the workflow more efficient and ergonomic. The rearrangement of the workspace is expected to minimize unnecessary movement, speed up the mixing process, and improve the comfort and safety of staff. In addition, the implementation compounding formulary This strategy is necessary to limit the variation in the formulations used, the reby standardizing the compounding process and shortening processing times. Implementing this strategy is expected to reduce waiting times for medication services and improve the efficiency of pharmaceutical services at Mesra Hospital.

Management

Management plays a strategic role in controlling waiting times for medication services at the Mesra Hospital Pharmacy Unit. The study found that waiting time issues are not only influenced by technical service factors but also by suboptimal management functions, particularly in resource planning, work scheduling, and monitoring and evaluating pharmaceutical service performance. Wait time monitoring has been conducted periodically through quality reports, but has not been accompanied by routine evaluations and structured operational follow-up.

Nurfajri (2025) research confirms that workload analysis is a crucial basis for planning pharmacy staff needs and improving service quality. A mismatch between actual workload and staff scheduling can lead to service inefficiencies and prolong patient waiting times. Therefore, one key management solution is to schedule pharmacy staff shifts aligned with peak service hours. This adjustment allows for a more equitable workload distribution, allowing pharmacy service capacity to offset peak prescription surges at specific times.

In addition to shift management, daily or weekly wait time indicator evaluation is a crucial step in strengthening control functions. Routine evaluations enable management to detect increases in wait times early and promptly make operational adjustments. Nurfajri (2025) states that regular monitoring of quality indicators can improve management responsiveness in decision-making and maintain consistent pharmaceutical service quality.

Furthermore, the implementation of Continuous Quality Improvement Quality of Service (CQI) is a relevant managerial approach to ensure continuous improvement in medication wait times. The CQI program enables hospitals to undertake an iterative cycle of improvement through problem identification, solution implementation, outcome evaluation, and policy adjustment. By integrating workload-based shift scheduling, routine evaluation of wait time indicators, and CQI implementation, the management of the Mesra Hospital Pharmacy

Installation is expected to consistently reduce medication wait times and improve the overall quality of pharmaceutical services.

Conclusion

Based Based on the research results, it can be concluded that the waiting time for drug services at the Mesra Hospital Pharmacy Installation is still not optimal and is influenced by various interrelated factors, including inefficient division of main tasks and functions of pharmacists, delays in prescription input by doctors, suboptimal cross-unit coordination, patient congestion during certain service hours, limited space and compounding suggestions, and the lack of standardization of the compounding process. Analysis of priorities and root causes shows that human resources, work methods, materials and service management factors play a significant role in the occurrence of delays in drug services, especially during peak service hours. Therefore, it is recommended that hospital management improve the flow of pharmaceutical services by establishing duties and functions based on actual workload, strengthening doctor-polyclinic-pharmacy coordination, revising and socializing SOP for drug services with the principle lean workflow, enforcement of real time prescription input through SIMRS, adjustment of shift scheduling during peak hours, integration of polyclinic and pharmacy queues, ergonomic rearrangement of compounding rooms, and standardization of compounding variations to reduce waiting times for drug services and improve the quality of pharmaceutical services and patient satisfaction.

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