

Evaluation of Waiting Time for Non-Compounded Prescription Services at the Executive Pharmacy Depot of RSUD X, West Java

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Abstract. Prescription dispensing waiting time is a key indicator in pharmaceutical services regulated under the Hospital Minimum Service Standards (SPM) based on the Decree of the Minister of Health No. 129/Menkes/SK/II/2008, which stipulates a maximum waiting time of 30 minutes for non-compounded prescriptions. This study aimed to analyze prescription dispensing waiting times, assess compliance with the SPM, and identify patient and prescription characteristics associated with waiting times at the Executive Pharmacy Depot of RSUD X, West Java Province. A quantitative descriptive observational study was conducted from October to November 2025. A total of 155 non-compounded prescriptions from outpatients at the Executive Polyclinic were included. Data were collected through direct observation. Of the 155 prescriptions analyzed, the overall mean waiting time was 14.28 minutes, and 140 prescriptions (90.33%) were dispensed within 30 minutes and met the SPM requirement. Root cause analysis using fishbone method was conducted to systematically identify the factors associated with waiting time for non-compounded: human resources, work systems, technology, and drug availability..

Keywords: pharmacy depot, minimum service standards, waiting time, non-compounded prescription

Abstrak. Waktu tunggu pelayanan resep merupakan indikator utama dalam pelayanan kefarmasian yang diatur dalam Standar Pelayanan Minimal (SPM) Rumah Sakit berdasarkan Keputusan Menteri Kesehatan No. 129/Menkes/SK/II/2008, yang menetapkan batas waktu tunggu maksimal 30 menit untuk resep non-racikan. Penelitian ini bertujuan untuk menganalisis waktu tunggu pelayanan resep, menilai kepatuhan terhadap SPM, serta mengidentifikasi karakteristik pasien dan resep yang berhubungan dengan waktu tunggu di Depo Farmasi Eksekutif RSUD X, Provinsi Jawa Barat. Studi observasional deskriptif kuantitatif dilakukan pada bulan Oktober hingga November 2025. Sebanyak 155 resep non-racikan dari pasien rawat jalan di Poliklinik Eksekutif diikutsertakan dalam penelitian ini. Data dikumpulkan melalui observasi langsung. Dari 155 resep yang dianalisis, rata-rata waktu tunggu keseluruhan adalah 14,28 menit, dan 140 resep (90,33%) dilayani dalam waktu kurang dari 30 menit serta memenuhi ketentuan SPM. Analisis akar masalah menggunakan metode *fishbone* dilakukan untuk mengidentifikasi secara sistematis faktor-faktor yang memengaruhi waktu tunggu resep non-racikan, yaitu: sumber daya manusia, sistem kerja, teknologi, dan ketersediaan obat.

Kata kunci: depo farmasi, standar pelayanan minimal, waktu tunggu, resep non-racikan

1. INTRODUCTION

Hospitals are integral components of the social and healthcare system that provide comprehensive individual health services, including inpatient, outpatient, and emergency care services[1]. The quality of hospital services can be reflected in the performance of the Hospital Pharmacy Installation (HPI), which is responsible for all aspects of

pharmaceutical services, ranging from medication preparation and dispensing to providing patient counseling through Communication, Information, and Education (CIE) activities[2],[3]. One of the key indicators used to assess the quality of pharmaceutical services in hospitals is prescription dispensing waiting time[4].

According to the Ministry of Health of the Republic of Indonesia, prescription dispensing waiting time is defined as the duration required from the moment a patient submits a prescription until the medication is received. Waiting time is an important factor influencing patient satisfaction and remains a common challenge in healthcare service settings[5]. Prolonged waiting times may not only reduce patient satisfaction but also negatively affect medication adherence and clinical outcomes[5],[6].

Patient characteristics, such as gender and age group, may also influence the demand for pharmacy services. Pediatric and infant patients generally require more precise dose adjustments, which can affect the duration of medication preparation[7]. Through the Decree of the Minister of Health of the Republic of Indonesia No. 129/Menkes/SK/II/2008 concerning Hospital Minimum Service Standards (SPM), the Indonesian government established pharmacy service waiting time standards of a maximum of 30 minutes for non-compounded (non-compounded) prescriptions and 60 minutes for compounded prescriptions. Several factors may contribute to prolonged waiting times, including limited human resources, prescription complexity, queue management systems, and workplace conditions[8],[9].

This study was conducted at the Executive Pharmacy Depot of RSUD X, West Java Province, with the objectives of (1) describing patient characteristics based on gender and age group, (2) measuring the actual waiting time for dispensing non-compounded prescriptions, (3) evaluating compliance with the Hospital Minimum Service Standards, and (4) identifying the root causes of waiting times using fishbone analysis. This study focused specifically on non-compounded prescriptions because they constitute the majority of prescriptions processed at the Executive Pharmacy Depot and are governed by a distinct, shorter Hospital Minimum Service Standard (30 minutes) than compounded prescriptions (60 minutes), allowing a more standardized and comparable assessment of routine dispensing performance. The findings of this study are expected to serve as a basis for evaluating and improving the quality of pharmaceutical services

2. METHOD

This study utilized a descriptive observational design with a quantitative methodology to assess prescription dispensing waiting times at the Executive Pharmacy Depot of RSUD X, West Java Province. Data collection occurred from October to November 2025 during operational hours (09:00–16:00 WIB). The study population included all outpatient medications handled at the Executive Pharmacy Depot throughout the study duration. A total of 155 pre-prepared prescriptions were chosen utilizing a quota sampling technique. This sample size was determined by the number of eligible non-compounded prescriptions that could feasibly be observed directly by the research team within the two-month data collection period during standard operational hours. The total population of non-compounded prescriptions dispensed at the depot during this period was not independently enumerated, and a formal sample-size calculation (e.g., using Slovin's formula) was therefore not performed; this constraint is addressed as a study limitation below. It should also be noted that Slovin's formula and related probability-based sample-size formulas are designed for studies that draw a simple random sample from a known, enumerable population to estimate a population proportion; they are not directly applicable to real-time, quota-based observational designs such as the present time-motion assessment, in which prescriptions were sampled as they were dispensed during fixed observation windows rather than selected at random from a pre-defined sampling frame. Consistent with this operational design, the sample size of 155 prescriptions falls within the range reported by comparable single-site, non-compounded prescription waiting-time studies in Indonesian hospital pharmacies, which have similarly relied on feasibility-based or quota sampling over defined observation periods rather than formal probability sampling.

Data were collected prospectively through direct observation and review of the Hospital Management Information System (SIM-RS). Waiting time was automatically recorded from the time a prescription was received at the pharmacy depot until it was ready to be dispensed to the patient. Patient characteristics were documented, including gender (male/female) and age group (infants: 0–1 year; children: 1–17 years; adults: > 18 years). Waiting time was derived from Hospital Management Information System (HMIS) timestamps, specifically the interval between prescription check-in and check-

out; independent manual stopwatch or observer-based verification of these timestamps was not conducted. This reliance on system-recorded timestamps, rather than direct observer timing, is addressed as a study limitation below.

Data were analyzed using univariate descriptive statistics and presented as frequencies and percentages. The observed waiting times were subsequently compared with the Hospital Minimum Service Standards (SPM). Root-cause analysis of factors contributing to waiting times was conducted using fishbone analysis based on four dimensions: manpower, methods, machines, and materials. Institutional approval was obtained from the relevant authorities prior to data collection.

3. RESULT AND DISCUSSION

A total of 155 non-compounded prescriptions from outpatient patients at the Executive Pharmacy Depot of RSUD X, West Java Province, were included in this study. Patient characteristics based on gender are presented in Table 1.

Table 1 Distribution of Patients by Gender

Sample	Number (n)	Percentage (%)
Female	104	67.23
Male	51	32.77
Total	155	100.00

The majority of patients included in this study were female, accounting for 104 patients (67.23%), whereas male patients represented 51 patients (32.77%). This distribution reflects a commonly observed pattern in outpatient healthcare utilization, where women tend to access healthcare services more frequently than men. Similar findings were reported by Ramli (2022), who found that female patients constituted 62.6% of the study population, compared with 37.4% for male patients.[9] Previous studies have suggested that women generally demonstrate greater health awareness and are more likely to seek medical care when experiencing health-related concerns, resulting in higher utilization of healthcare services.

From a pharmaceutical care perspective, the predominance of female patients may influence the characteristics of prescribed medications and the nature of pharmacy

services provided. Women of reproductive age may receive prescriptions related to reproductive health, hormonal therapy, or obstetric conditions, which often require more comprehensive counseling and medication-related education by pharmacy personnel. Consequently, these requirements may contribute to slightly longer durations of communication, information, and education (CIE) activities for certain patient groups[2].

Patient characteristics were further analyzed according to age group, as presented in Table 2.

Table 2 Distribution of Patients by Age Group

Age Group	Number (n)	Percentage (%)
Infant (0-1 year old)	6	3.39
Child (1-17 years old)	67	43.50
Adult (>18 years old)	82	53.11
Total	155	100.00

As shown in Table 2, adult patients (> 18 years) constituted the largest age group at the Executive Pharmacy Depot of RSUD X, West Java Province, accounting for 82 patients (53.11%). This was followed by pediatric patients aged 1–17 years, comprising 67 patients (43.50%), while infants aged 0–1 year represented the smallest proportion, with 6 patients (3.39%). The relatively high proportion of pediatric patients, approaching that of adult patients, is an important finding in the context of pharmaceutical service delivery. (Pediatric patients generally require individualized dose adjustments based on body weight or body surface area, necessitating careful calculations and more comprehensive counseling by pharmacy personnel. Furthermore, because this study was restricted to non-compounded prescriptions, pediatric medications were dispensed as pre-manufactured, ready-to-use products, including proprietary liquid formulations, rather than extemporaneously prepared syrups or suspensions. Consequently, any additional dispensing time observed for pediatric patients is more plausibly attributable to dose verification against body weight, additional labeling checks, and more comprehensive counseling of parents or caregivers, rather than to compounding or preparation of the dosage form itself[10]. These factors may contribute to longer dispensing times in clinics

serving a higher proportion of pediatric patients, such as the Pediatric Clinic (mean waiting time: 16.79 minutes) and the Pediatric Subspecialty Clinic (mean waiting time: 13.00 minutes). It should be noted that these comparisons are based on descriptive statistics alone; as inferential statistical tests (e.g., ANOVA or Kruskal–Wallis) were not performed, the observed differences in mean waiting time across age groups and clinics should be interpreted as descriptive associations rather than statistically confirmed effects.

Although infants accounted for only a small proportion of the study population (3.39%), this patient group requires special consideration because prescriptions for infants demand a high degree of accuracy in dose calculations, selection of appropriate dosage forms, and provision of detailed instructions to parents or caregivers regarding medication administration. While these activities may increase dispensing time for individual prescriptions, their overall impact on waiting times is likely limited due to the relatively small number of infant patients.

Overall, the age distribution observed in this study, characterized by a predominance of adult and pediatric patients, highlights the need for an adaptive pharmacy service system. Strategies such as allocating pharmacy personnel with pediatric pharmaceutical care competencies and ensuring adequate availability of pediatric formulations across pharmacy units may help maintain service efficiency and quality.

The distribution of waiting times for non-compounded prescription dispensing is presented in Table 3. A total of 155 prescriptions were analyzed and categorized into four waiting-time intervals (minutes) to describe the overall performance of prescription dispensing services at the Executive Pharmacy Depot.

Table 3 Distribution of Waiting Time for Non-Compounded Prescription

Waiting Time Category (minutes)	Number of Prescriptions (n)	Percentage (%)	Remarks
0-9	54	34.84	Meets SPM
10-19	67	43.23	Meets SPM
20-30	19	12.26	Meets SPM

>30	15	9.67	Does Not Meet SPM
Total	155	100.00	

As presented in Table 3, the mean waiting time for non-compounded prescription dispensing was 14.28 minutes, substantially below the Hospital Minimum Service Standard (SPM) threshold of 30 minutes. A total of 90.33% of prescriptions were completed within the required standard. The largest proportion of prescriptions was dispensed within 10–19 minutes (43.23%), followed by 0–9 minutes (34.84%). These findings indicate that pharmaceutical services at the Executive Pharmacy Depot operate efficiently and perform better than the national average waiting times reported in previous studies, which ranged from 20 to 45 minutes [11].

A study by Rahmadini and Rahman (2024) reported an average waiting time of approximately 33 minutes for non-compounded prescriptions, indicating non-compliance with the SPM. Similarly, Mawikere (2024) reported an average prescription dispensing waiting time of 30.23 minutes at a tertiary referral hospital. Compared with these findings, the Executive Pharmacy Depot of RSUD X demonstrated superior performance in prescription dispensing services. One possible explanation is the full integration of the Hospital Management Information System (HMIS), which minimizes delays associated with data transfer between electronic prescribing (e-prescribing) systems and pharmacy dispensing units[6], [12], [13].

Despite the overall favorable performance, 15 prescriptions (9.67%) exceeded the SPM threshold, with the longest recorded waiting time reaching 59 minutes. These cases warrant further evaluation, particularly among patients with more complex prescriptions or during periods of increased patient volume. Delays in pharmaceutical services may adversely affect patient satisfaction and the overall quality of hospital services.

An evaluation of waiting times across individual outpatient clinics revealed noticeable variability, as shown in Table 4. The Executive Pharmacy Depot serves prescriptions from 20 outpatient clinics, with the Pain Clinic exhibiting the longest average waiting time and the Hemato-Oncology Clinic the shortest. Variations in waiting times among clinics may be attributed to differences in the number of prescribed medications, the extent of therapeutic verification required, patient visit volume, and

medication availability. Therefore, prescription complexity and operational factors are likely important determinants of waiting-time differences across clinics.

Table 4 Average Waiting Time for Non-Compounded Prescriptions by Clinic Type

No.	Clinic Type	Number of Prescriptions (n)	Percentage (%)	Average Waiting Time (minutes)	Remarks
1.	Executive Clinic	Pain 1	0.65	39.00	Does Not Meets SPM
2.	Executive Eye Clinic	11	7.10	20.08	Meets SPM
3.	Executive Dermatology and Venereology Clinic	7	4.52	18.63	Meets SPM
4.	Executive Orthopedic Surgery Clinic	2	1.29	17.50	Meets SPM
5.	Executive Pediatric Clinic	47	30.32	16.79	Meets SPM
6.	Executive General Surgery Clinic	5	3.23	15.80	Meets SPM
7.	Executive Endocrinology Clinic	3	1.94	15.00	Meets SPM
8.	Executive Dental Clinic	8	5.16	13.00	Meets SPM

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9.	Executive Pediatric Surgery	3	1.94	13.00	Meets SPM
10.	Executive Psychiatry Clinic	8	5.16	12.60	Meets SPM
11.	Executive Cardiology Clinic	2	1.29	12.50	Meets SPM
12.	Executive ENT Clinic	11	7.10	12.06	Meets SPM
13.	Executive Chemotherapy Clinic	1	0.65	11.00	Meets SPM
14.	Executive Neurology Clinic	12	7.74	10.91	Meets SPM
15.	Executive Neurosurgery Clinic	6	3.87	10.67	Meets SPM
16.	Executive Pediatric Dentistry Clinic	3	1.94	10.50	Meets SPM
17.	Executive Obstertrics and Gynecology Clinic	5	3.23	10.14	Meets SPM
18.	Executive Internal Medicine Clinic	12	7.74	9.93	Meets SPM
19.	Executive Pulmonology Clinic	7	4.52	9.00	Meets SPM
20.	Executive Hematology Oncology Clinic	1	0.65	6.00	Meets SPM
Total		155	100		

As shown in Table 4, considerable variation in waiting times was observed among outpatient clinics. The Pain Clinic recorded the longest average waiting time (39 minutes), exceeding the Hospital Minimum Service Standard (SPM) threshold. This clinic primarily serves adult patients with chronic conditions who often require complex analgesic regimens, including titration of narcotic and other controlled analgesics. Dispensing such regimens typically involves additional steps beyond routine medication retrieval, such as verifying dosing schedules against titration plans, cross-checking regulatory documentation for controlled substances, and confirming prescriber authorization, all of which may lengthen the dispensing process relative to non-controlled medications. In addition, controlled analgesics are often subject to stricter storage and stock-control requirements at the executive pharmacy depot, which may increase the likelihood of temporary unavailability. The prolonged waiting time may therefore be attributed to medication unavailability within the pharmacy unit, necessitating stock verification, coordination with relevant departments, or therapeutic substitution following physician approval. These additional processes may extend dispensing times, highlighting the importance of routine inventory control for medications frequently prescribed in the Pain Clinic. As the number of prescriptions underlying this clinic average was not recorded, it is also possible that this figure reflects a small number of unusually complex cases rather than a systemic pattern.

Overall, the dispensing service for non-compounded prescriptions at the Executive Pharmacy Depot complied with the SPM, with an average waiting time of 14.28 minutes and 90.33% of prescriptions completed within 30 minutes. These findings indicate that the pharmacy service generally operates in accordance with established standards. Nevertheless, 15 prescriptions (9.67%) exceeded the SPM threshold, warranting further investigation into the factors contributing to prolonged waiting times. A fishbone analysis was conducted to identify potential root cause related to waiting time for non-compounded prescription services. The identified contributing factors were categorized into four domains: manpower, methods, machines, and materials. It should be noted that the following discussion reflects a theoretical, observation-based root-cause analysis informed by direct observation and staff experience during the study period, rather than a quantitatively measured breakdown of delay contributors; the frequency of specific

events, such as stock shortages or workflow congestion, was not systematically tallied during data collection.[14]

Man. Direct observation during this research indicated that the Executive Pharmacy Depot was staffed by approximately three to four pharmacy personnel per shift, with an additional one to two staff members assigned during peak service hours to reduce workload. This staffing strategy reflects an adaptive workforce management approach, allowing available personnel to be allocated according to service demand. Although staffing levels were not identified as a primary contributor to prolonged waiting times, periodic workload assessments and performance evaluations may further enhance service efficiency and maintain the quality of pharmaceutical care. When staffing levels are sufficient, pharmacy personnel are better able to manage prescription volume, perform medication accurately, provide comprehensive patient counselling, and maintain adherence to professional practice standards[15]

Methods. The prescription dispensing process involves multiple sequential steps, beginning with prescription receipt and ending with medication delivery to the patient. The absence of separate processing pathways for simple and complex prescriptions, as well as compounded and non-compounded prescriptions, may contribute to workflow congestion and service delays. Establishing dedicated dispensing pathways could reduce prescription accumulation and improve service efficiency. In addition, standardized operational procedures should be clearly documented and implemented across pharmacy units to ensure consistency and maintain optimal service performance.[16]

Machines and Technology. Waiting times exceeding 30 minutes were not solely attributable to medication preparation activities but were also influenced by the service documentation process within the Hospital Management Information System (HMIS). At the Executive Pharmacy Depot, prescription check-in is performed before prescription processing begins, indicating that payment verification has been completed and dispensing activities may proceed. Consequently, the recorded start time accurately reflects the actual commencement of service. However, prescription check-out is performed manually after medication preparation. During periods of high workload, pharmacy personnel may delay the check-out process because they simultaneously perform prescription screening, medication retrieval, labeling, and medication dispensing

for multiple prescriptions. As a result, the recorded completion time may not accurately represent the actual dispensing time, leading to an overestimation of waiting times. The implementation of real-time prescription monitoring systems and barcode-scanning technology integrated with medication handover processes could automate status updates upon dispensing, thereby improving data accuracy and reducing delays in service documentation.[17]–[19]

Materials. Medication availability represents another factor that may contribute to prolonged waiting times. Occasional stock shortages, observed qualitatively rather than systematically tallied during the study, require pharmacy personnel to obtain medications from other pharmacy units or request additional supplies from the central pharmacy warehouse, which is located at a considerable distance from the Executive Pharmacy Depot. Repeated staff movement between locations during service hours may increase dispensing times, particularly during peak periods. Therefore, strengthening inventory management and distribution systems through the provision of adequate buffer stock, implementation of real-time inter-unit inventory monitoring, and optimization of pharmacy layout and logistics processes may reduce staff mobilization time and improve the overall quality of prescription dispensing services.[20]

This study has several limitations. First, waiting time was obtained from Hospital Management Information System (HMIS) timestamps because the check-out process depended on manual input by pharmacy staff, the recorded waiting time may not fully reflect the actual patient waiting time. Second, this study used only descriptive statistics. Therefore, differences in waiting time across patient characteristics and clinic types should be interpreted descriptively rather than as statistically significant associations. Inferential analyses were not performed because prescriptions were unevenly distributed across clinics, with several clinics having very small sample sizes. Third, the sample of 155 prescriptions was obtained using quota sampling without a formal sample size calculation, which may limit its representativeness. Finally, the Fishbone analysis was based on field observations rather than quantitative measurements and should be interpreted as a conceptual explanation of potential contributing factors. Future studies should include larger samples, inferential statistical analyses, and direct validation of waiting-time measurements.

4. CONCLUSION

Among the 155 patients included in this study at the Executive Pharmacy Depot of RSUD X, West Java Province, females constituted the majority of the study population (67.23%), while adults represented the largest age group (53.11%). Pediatric patients also accounted for a substantial proportion of the population (43.50%). These demographic characteristics indicate diverse pharmaceutical care requirements, including pediatric dose adjustments and comprehensive counseling for patients and caregivers.

The dispensing service for non-compounded prescriptions complied with the Hospital Minimum Service Standards (SPM), achieving a mean waiting time of 14.28 minutes. Furthermore, 90.33% of prescriptions were processed within the SPM target of 30 minutes. Nevertheless, considerable variability in waiting times was observed across outpatient clinics. The longest average waiting time was recorded in the Pain Clinic (39 minutes), whereas the shortest was observed in the Hemato-Oncology Clinic (6 minutes).

Root-cause analysis using a fishbone diagram identified several factors that may contribute to prolonged waiting times, including the absence of separate dispensing workflows for compounded and non-compounded prescriptions, limitations in the information technology infrastructure, and occasional medication stock shortages. To further improve the quality of pharmaceutical services, several corrective measures are recommended, including the implementation of dedicated dispensing pathways, integration of barcode-scanning technology, optimization of inventory distribution systems, and regular quality improvement evaluations.

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