

## **REVIEW: FACTORS AFFECTING WAITING TIME FOR OUTPATIENT PRESCRIPTION DRUGS IN HOSPITALS**

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### **ABSTRACT**

*Waiting is an activity which frequently causes uncomfortable feelings, particularly in health services. Patients who attend to health care facilities such as hospitals, are eager to receive good and quality health care system without having to wait for a long time. The quality of pharmaceutical services in hospitals influences the level of patient satisfaction with the services provided by pharmacy staff in drug services to patients. There are still numerous waiting times for outpatient prescription drug services in Indonesian hospitals which do not fulfill minimum service standards. Thus, the objective of this review articles is to determine the factors affecting the waiting time for outpatient prescription services at the hospital. This review was conducted by employing the literature review method with a sample size of 12 articles. The results acquired are several factors influencing the waiting time for outpatient drugs in hospitals encompassing: receiving prescriptions, providing etiquette, working on prescription drug concoctions, submitting drugs, facilities and infrastructure, human resources, hospital management information systems and standard operating procedures. Based on the complexity of the issue which was found in this review, the most dominant and influencing factors on the waiting time of outpatient drugs at the hospital are prescription reception, providing etiquette, preparation of prescription drugs, and submitting drugs.*

**Keywords:** *Drug waiting time, Outpatient, Pharmaceutical services, Hospital*

### **INTRODUCTION**

Pharmacy services are one of health services in hospitals which are expected to fulfill minimum service standards. The objective is to determine definite results in enhancing the quality of patient life, advancing the quality of pharmaceutical services, and ensuring legal certainty for pharmaceutical personnel, and protecting patients and the public from irrational use of drugs in the context of patient safety (Hutabarat, 2017). The quality of pharmaceutical services in hospitals influences the level of patient satisfaction with the services provided by pharmacy staff in drug services to patients. Quality health services have to be able to provide satisfaction to patients or every user of health services (Arini, Y, Suwastini, Tinggi, & Mahaganesh, 2020).

Patient waiting time is one component which owns the potential to cause dissatisfaction. Waiting time is the patient's grace period in receiving services (Jaya & Apsari, 2018). The waiting period for prescription services begins when the prescription is received and ends when the patient receives the medication. Waiting times in Indonesia are designated by the Ministry of Health (Kemenkes) through minimum service standards. According to PMK No. 129 of 2008, a prerequisite for pharmacy services in hospitals is waiting time. The waiting

period for ready-made drugs is the time interval between when a patient submits a prescription and when they receive the completed drug; the minimum standard established by the ministry of health is 30 minutes. In contrast, the waiting period for compound drugs is the time interval between when a patient submits a prescription and when they receive a compounded drug, which is 60 minutes. (Kementerian Kesehatan RI, 2008). However, the results of several previous studies reveal that the waiting time for prescription services is still long or not in accordance with the minimum service standards formulated by the ministry of health. One of the reasons for this is the lack of manpower or human resources at the hospital. To obtain quality health services, hospitals are required to be able to fulfill the Minimum Service Standards, thus, one way to fulfill the MSS is to adjust the provisions of Pharmaceutical Services with the Minimum Service Standards which have been generated by the government (Rahman, 2020).

There are still numerous waiting times for outpatient prescription drug services in Indonesian hospitals which do not fulfill minimum service standards. A large number of requests for drugs by outpatients and inpatients from poly or other parts of the hospital escalated in service time, and waiting time for buyers. The impact of this is the emergence of long queues which cause people to be reluctant to redeem drugs at the pharmacy, even though the hospital pharmacy installation possesses a considerable influence and contribution to the hospital (Okyaviani, Andayani, & Pamudji, 2019).

Primary factors which require to be considered in patient care encompass quick and friendly service accompanied by guaranteed drug availability (Hanisu, Indar, & Rum, 2021; Nursalam, 2014). The quality of service is considered good if it fulfills the speed and accuracy of service, that is the suitability between the prescriptions submitted and the preparations received by the patient or his family (Kautsar, Nurhayati, & Gozali, 2017; Ostrowska, Drozd, Patryn, & Zagaja, 2022). Other factors affecting the waiting time for outpatient drug prescriptions at the hospital are the number and types of compounded and non-concocted prescriptions, drug items, prescription completeness, compounding process, availability of human resources, and drug supply in accordance with the prescription and facilities. Thus, it is necessary to support the process of operating prescription services and standard operating procedures employed (Mare, Citraningtyas, & Jayanto, 2021; Nurlaila, Marchaban, & Yuniarti, 2022).

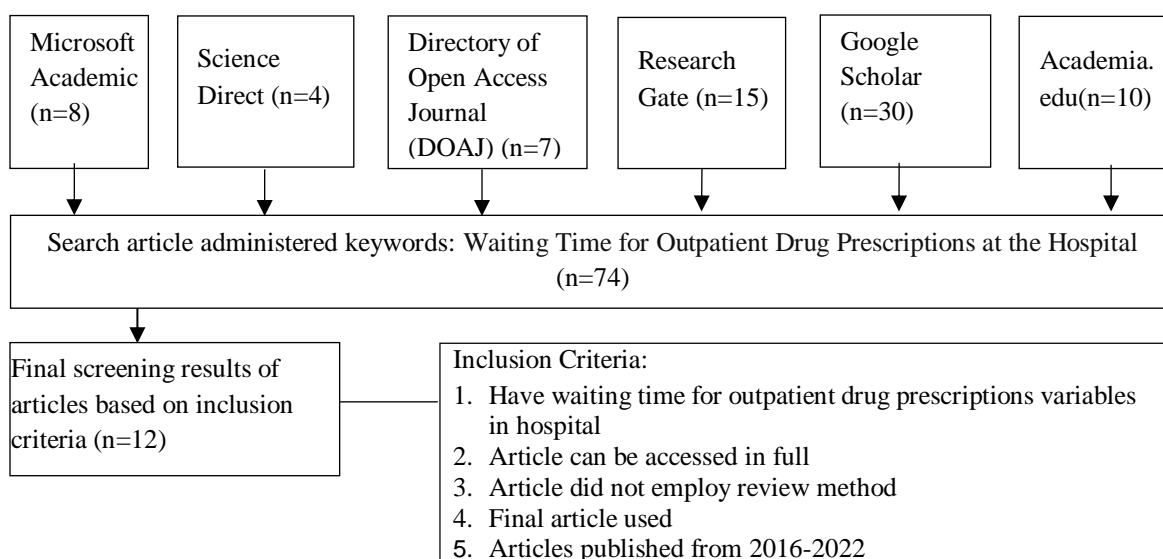
Hospitals are the choice in measuring the quality of service waiting time for outpatient prescriptions as they are one of the first-level health agencies whose existence is close to the community and spreads to all regions of each district. Waiting time for outpatient prescription drug services is a work standard influencing service quality. In accordance with the literacy studies conducted, it was discovered that there were still many that did not fulfill the standard time average which had been predetermined and the literature associated with the waiting time for outpatient drug prescriptions in hospitals, it was still relatively small. Thus, it is necessary to identify the factors affecting the waiting time for outpatient prescription services in hospitals. Due to the above description, the objective of writing this literature review is to identify what factors affecting the waiting time for outpatient drug prescriptions at the hospital. This review thoroughly and comprehensively identified the factors that affect length of waiting time drugs at hospitals, both in terms the components that support the process and that prescriptions service process. However, this review still has limitations because original studies articles that specifically discussed the factors affect of drugs prescription waiting time for outpatients based on the types of the prescription were still limited.

## RESEARCH METHOD

Method of this articles was a literature review research. Literature review was employed to identify research topics selectively on interesting and current issues. The objective of the literature review was to acquire a literacy study that can be utilized as a literature review or reference in descriptive or explanatory-based studies. The source of this articles data comes from the literature achieved through the internet in the form of scientific research results from several sources. Data retrieval was completed through internet searching

from Science Direct, Microsoft Academic, Open Access Journal Directory (DOAJ), Researchgate, and Google Scholar with keywords entered, that is “description of waiting time for outpatient drugs”, “obstacles of waiting time for outpatient prescription drugs service in hospital”. and “factors of waiting time for outpatient drugs in hospital”.

The population in this review articles was a study with a concern on factors affecting the waiting time of hospital outpatient drugs from 2016 to 2022 as many as 12 articles research results were administered from scientific publications of the Public Health Department, Medicine, and Administration, Medicine and Public Health, Policy Public Health and Health Administration. Sampling in this study employs total sampling technique. Total sampling is a sampling technique with the same number of samples as the population. The articles administered in this review were 12 articles by employing the flow diagram method as below:



**Figure 1. Flow Diagram of Screening Article for Literature Review (Firmansyah et al., 2021)**

## RESULTS AND DISCUSSION

In this chapter, the author elaborates several sources from the literature about the factors affecting the waiting time for outpatient drug prescriptions in hospitals. In accordance with the results of a literature search, the authors revealed twelve articles which fulfill the inclusion criteria. The results of this articles review are associated with factors affecting the waiting time for outpatient drug prescriptions at the hospital. The results of review that the authors obtain are presented in accordance with the presentation table as follows:

### Articles Identification and Synthesis

**Table I. Articles Synthesis Results**

Main Idea	Similarities of Research Findings	References
Prescription Acceptance	According to various literature sources reviewed, one of the factors affecting the waiting time for outpatient drug prescriptions at the hospital is the prescription reception. Process prescription receipts are performed by pharmacist assistants who concurrently work on prescription screening. In the prescription screening, there were several obstacles, which is delays as the drugs were empty and had to be confirmed at the pharmacy warehouse first.	(Amalia & Ramadhan, 2021; Snoswell, Cossart, Chevalier, & Barras, 2022)

Main Idea	Similarities of Research Findings	References
Providing Etiquette	Then, there was a stock vacancy at the outpatient pharmacy depot. In accordance with various literature sources reviewed, one of the factors influencing waiting time for outpatient drug prescriptions in hospitals is labeling. The process of providing etiquette experienced delays. The longest delay occurred during drug delivery, then, the delay also occurred since the officers waited for the drug basket to pile up after providing the new label, and then it was handed over to the drug delivery desk.	(Fadhilah, Indriyani, & Andriati, 2019; Febrianta, Sundari, & Pudjaningsih, 2017)
Working on Concocted Medicine Recipes	Associated with the various literature sources that were reviewed, one of the factors affecting the waiting time for outpatient drug prescriptions at the hospital is the manufacture of prescription drug concoctions. That process require quite a long time to order a prescription drug concoctions even though it was equipped with a blender and a press machine because each prescription service was assigned one officer. Frequently, for one recipe, there are 30 packs or even more so that it became hampered in the prescription service.	(Amaliany, Hidana, & Maryati, 2018; Sari, Wahyuni, & Anindita, 2020)
Submission Drugs	In accordance with various literature sources reviewed, one of the factors affecting the waiting time for outpatient prescription drugs in hospitals is the delivery of drugs. This factor became an obstacle because in this delivery, occasionally, patients left the drug waiting room, then some patients had to be instructed repeatedly due to lack of hearing or the meaning conveyed by the pharmacist was not clear.	(Faulin, Hartono, & Wahyudi, 2019; Miftahudin, 2019)
Facilities and infrastructure	Based on literature sources examined, one of the factors affecting the waiting time for outpatient drug prescriptions in hospitals is the facilities and infrastructure. The equipment for performing prescription services was complete, it was just it was frequently damaged so that it was quite disturbing in the service process. Furthermore, the area of the room is considered too narrow, thus, it is not optimal for conducting services because officers possess difficulty performing in and out when numerous officers are in front.	(Fitriah, Ika Faramita, & Wiyanto, 2016)
Human Resources (HR)	According to literature sources examined, one of the factors affecting the waiting time for outpatient drug prescriptions in hospitals is human resources (HR). The lack of personnel resulted in the service process to patients not being optimal due to a large number of prescriptions, hence, employees tended to be in a hurry in serving patients and a shortage of personnel also occurred at the stage of providing etiquette and drug delivery.	(Athfaal, Pratiwi, & Santoso, 2019)
Hospital Management Information System (HMIS)	According to literature sources reviewed, one of the factors influencing the waiting time for outpatient drug prescriptions in hospitals is the hospital management information system. The HMIS for prescription services was already available in various hospitals, but was still in the process of being developed, hence, it could not fulfill the needs of employees and still frequent errors.	(Yani, Maraiyuna, & Vonna, 2022)

Main Idea	Similarities of Research Findings	References
Standard Operating Procedures (SOP)	Based on literature sources reviewed, one of the factors affecting waiting time for outpatient prescription drugs in hospitals is standard operating procedures. The standard operating procedures for outpatient prescription services are available, but not all employees understand because not all of them receive socialization or explanations regarding SOPs., hence, in conducting prescription services, they are not guided by the SOP and only follow habits.	(Suryana, 2018)

The literature review administered is 12 with the contents of the factors affecting the waiting time for outpatient drugs at the hospital. Then, it is classified into two clusters, which are the factors affecting the waiting time for outpatient drugs at the hospital and the description of the waiting time for outpatient drugs in the hospital. The research sample in the journal administered as a literature review is national, hence, it can reflect problems associated with the overall waiting time for outpatient drugs in hospitals.

### Overview of waiting time for outpatient medication at the hospital

Based on the results, the description of waiting time for outpatient drug prescriptions in hospitals is a problem which is still frequently discovered in health care practice and one of the components that possess the potential to cause dissatisfaction to encompass receiving prescriptions, providing labels, working on prescription drugs, submitting drugs, facilities and infrastructure, human resources, hospital management information systems, and standard operating procedures. Waiting for a long time, indicate the implementation of outpatient services is still not performing well and is not optimal, the effect of waiting time for prescription drugs for outpatients hospital walkers are mostly dissatisfied with waiting times which are more than standard (Pizer & Prentice, 2011).

There are a number of issues, including the prescription acceptance issue, the prescription screening issue, which results in delays because the drug stock is empty and must first be confirmed at the pharmacy warehouse, the labeling issue in which the drug baskets that have been labeled are waiting to pile up, and the fact that it was just distributed to the front for the delivery of drugs to patients because the officers were quite complicated. (Wei et al., 2018). It was performed because the room's layout made it difficult for officers to enter and exit the space, which added to the delays at both stages and made working on prescription drug mixtures more difficult. As a result, the prescription service process was slightly slowed down. Typically, a concoction for one recipe contains 30 packs or more, which hinders the service of the recipe and affects human resources, causing the patient service process to be less than ideal due to a high volume of prescriptions. As a result, staff members rush to serve patients, which causes delays, especially at the prescription verification stage (Alburikan et al., 2018).

One form of drug service in hospitals is required to provide excellent service to create patient satisfaction, particularly with a short waiting time. The average waiting time for outpatient drugs in Indonesian hospitals is 40.06 minutes for the average prescription for completed drugs, it is still not following the standards stipulated, that is for finished drugs 30, while the average concoction prescription is 60.24 minutes. Thus, the waiting time for concoction drugs is still not based on the standard regulated by the Decree of the Minister of Health of the Republic of Indonesia Number 129/Menkes /SK/II/2008 concerning Minimum Service Standards for Hospitals, which is for concoction drugs 60 Minutes. The long waiting time is the reason why patients do not redeem their prescriptions at the pharmacy installation (pharmacy) in the hospital. Speed of service is tremendously essential because, in modern society, time is a commodity which cannot be repeated (Rastogi et al., 2022).



### Factors that affect the waiting time for outpatient medication in the hospital

One of the factors that frequently affect waiting times when serving patients is when receiving drug prescriptions, providing labels, working on prescription drugs, submitting drugs, facilities and infrastructure, human resources (HR), hospital management information systems, standard operating procedures, the number of employees is still insufficient, patients who don't keep their appointments, and medical officers who don't pay attention to their schedules. The provision of lengthy patient medical record files, on the other hand, is a common factor that frequently causes patient waiting times in outpatient services. According to [Table I](#), the following factors influence the amount of time patients must wait for outpatient drug services in hospitals:

#### 1. Prescription Acceptance

Waiting time for drugs is a problem which frequently causes patient complaints in hospitals, particularly for outpatients ([Fauzia, Setiawati, & Surahman, 2017](#)). The length of patient waiting time reflects how the hospital manages service components which are tailored to the patient's situation and expectations ([Lestari, Parinduri, & Fatimah, 2020](#)). One of the factors affecting the waiting time for outpatient drug prescriptions at the hospital is the reception of prescriptions ([Amalia & Ramadhan, 2021](#); [Snoswell et al., 2022](#)). The receipt of prescriptions is performed by pharmacist assistants who concurrently work on prescription screening, which is a pharmacist's activity in respond the prescriptions and clinical judgment ([Rizkiyani & Emelia, 2022](#)).

In prescription screening, there are several obstacles, which are delays because the drugs are empty and must confirm at the pharmacy warehouse first whether the drug stock is available or not. If the drug is not available in the warehouse, the pharmacist will confirm the doctor regarding the prescription whether the drug can be replaced. Then, there is a stock vacancy at the outpatient pharmacy due to a drug defect which is not optimal, hence, there is a stock vacancy at the outpatient pharmacy. However, occasionally, this vacancy occurs due to delays in waiting for drugs coming from distributors, affecting prescription drug services to take a long time. There should be a buffer stock, hence, there is no shortage of drugs following the applicable SOP ([Yunus, 2020](#)).

#### 2. Providing Etiquette

Waiting time for drugs is a problem in hospitals and reflects how the hospital manages service components which are accommodated the patient's situation and expectations ([Lestari et al., 2020](#)). In accordance with various literature sources reviewed and examined, one of the factors affecting waiting time for outpatient drug prescriptions in hospitals is labeling ([Fadhilah et al., 2019](#); [Febrianta et al., 2017](#)). Drug labeling/etiquette requires the accuracy of officers and must be re-examined, because related to patient safety and drug use. Etiquette contains at least the patients's name and the rules for using drugs ([Novitasari, 2019](#)).

The process of providing this label requires the skills of the officer to be quick in writing and sticking the drug label after the drug is received, rechecking the drug's suitability with the prescription. At this stage of the process, occasionally, some patients are demanded to write down the use of the drug which definitely spends more time. The prescription should have been accepted by the patient, instead, it has to be delayed for writing the indication for each drug. Thus, it is recommended if the prescription at the time of labeling must be provided information about the indications of the drug that will be consumed by the patient for prevent medication errors ([Azrifitria, Fauziyah, & Nur, 2019](#)). The ability to read recipes is considered the most influential in the speed of service. However, there has been no special training to enhance the ability of employees in service. It is clarified by the observation that during the verification and checking when providing the label, several times, the officers experienced difficulty reading the writings of the prescribing doctor. Thus, they had to ask other officers, this prolongs the service process ([Margiluruswati & Irmawati, 2017](#)).

### 3. Working on Concocted Medicine Recipes

According to various literature sources reviewed and examined, one of the factors affecting the waiting time for outpatient drug prescriptions at the hospital is the manufacture of prescription drug concoctions (Amaliany et al., 2018; Sari et al., 2020). In the case of working on prescription drug concoctions, it spends absolutely a long time even though it is equipped with a blender and press machine because each prescription service is assigned one officer. It occasionally happens causing the recipe service process to be a bit hampered (Alburikan et al., 2018). Frequently, for one recipe, the mix is 30 packs even more, hence, it becomes hampered in the service of the recipe. If the target time of concocted medicine recipes cannot be met, it indicates that the pharmacy service has not been efficient (Wei et al., 2018).

The type of prescription drug compound possesses a longer service because the type of prescription drug compound has to calculate, weigh, and obtain the number of drugs required following the demanded dose and have to concern on mixing the properties and types of medicinal ingredients. As for the service stage of the compound recipe that takes the longest time, the first is at the stage of the compounding process. The compounding process owns an average service of 7 minutes and 57 seconds (Margiluruswati & Irmawati, 2017). The factor causing the compounding process to be the longest is because the supporting equipment employed when entering the compounded drug into the capsule utilizes a simple tool. The prescription service stage that affects the second long waiting time for prescription services is the pause stage from verification to data entry, in which at this stage, is also the longest delay in non-combined prescription services (Tomi, Hidayati, & Bachtiar, 2019).

### 4. Submission of Drugs

In accordance with various literature sources reviewed and examined, one of the factors affecting the waiting time for outpatient prescription drugs in hospitals is the submission of drugs (Faulin et al., 2019; Miftahudin, 2019). The delivery of drugs to patients is performed by calling the prescription queue number that has been distributed when the prescription is received. Barriers to this delivery are occasionally patients who leave the drug waiting room, then some patients have to be explained repeatedly due to a lack of hearing or the meaning conveyed by the pharmacist is not clear (Pizer & Prentice, 2011).

Furthermore, it occurs during the submission of drugs. It is due to the prescription work at the labeling stage that is not in the order of the queue number, the lack of employees, particularly during peak hours so that the medicine will be distributed when the officer has completed his work at another stage. Then, the delay also occurred because the officers waited for the drug baskets to pile up after providing the new labels and then they were submitted to the drug delivery desk. Consistently, drug delivery is administered when finished drugs are piled up on the drug delivery table. It is because the number of pharmaceutical technical personnel is merely 3 people in the field of prescription services and assisted by 1 pharmacist (Tomi et al., 2019).

### 5. Facilities and infrastructure

The facilities and infrastructure is one of the factors affecting the waiting time for outpatient drug prescriptions in hospitals (Fitriah et al., 2016). Facilities and infrastructure are one of the factors influencing the waiting time for outpatient prescription drugs in hospitals, for instance, internet-based computer programs possess drawbacks, that is the occurrence of unstable internet connections, then hospital computer maintenance is administered which causes the input process to be hampered, and also the equipment for conducting prescription services is complete. It is just that it is frequently damaged so that it interferes with the service process, for instance the printer jams, the mic to call patients, and the air conditioner turns off. Moreover, the area of the room is considered inappropriate because it is too narrow, hence, it is not optimal for performing services because officers experience difficulties getting in and out when many officers are in front (Purwandari, Suryoputra, & Pawelas Arso, 2017).

The room's layout is also regarded as not following the service flow because it was never modified to follow the recipe service flow. Similar to how the officers find it challenging to open the door with the medicine basket, the labeled medicine baskets, which are waiting to be piled up until there are many, are then given to the front for the delivery of medications to patients. It was performed because the room's layout made it difficult for officers to enter and exit, which caused to delays at both stages (Snoswell et al., 2022).

#### **6. Human Resources**

One of the factors affecting the waiting time for outpatient drug prescriptions in hospitals is human resources (HR) (Athfaal et al., 2019). This is because human resources of pharmacy have an important role in drug delivery, reporting, packaging and drug labelling. (Loh, Liew, Teo, Khairuddin, & Fairuz, 2017) The lack of personnel resulted in the service process to patients being not optimal due to a large number of prescriptions, thus, employees tended to rush in serving patients. It caused delays, particularly at the prescription verification stage (Bardwell, Ivsins, Socías, & Kerr, 2021).

Furthermore, delays also occur due to waiting for pharmacists from other depots to provide information on how to employ the device to patients (Bardwell et al., 2021). Lack of manpower also occurs at the labeling and drug delivery stages. The ability to read recipes is considered the most influential in the speed of service. However, so far, there has been no special training to enhance the ability of employees in service. It is confirmed by the observation that during the verification and checking when providing labels. Several times the officers experienced difficulty reading the writings of the prescribing doctor hat they had to ask other officers, definitely prolonging the service process (Meghani et al., 2020).

#### **7. Hospital Management Information System**

The hospital management information system (HMIS) is one of the factors affecting the waiting time for outpatient drug prescriptions in hospitals (Wikandari & Mahmuluddin, 2021; Yani et al., 2022). Hospital management information systems are one of the factors influencing waiting time for outpatient prescription drugs in hospitals, RS SIMs for prescription services are already available in various hospitals, but are still in the process of being , thus, they cannot fulfill the needs of employees and there are still frequent errors (Purwandari et al., 2017). The HMIS is not the best option for the prescription service process if it cannot directly recognize the drug's price when input, the number of prescriptions written each day, or the stock of available medications. Multiple research findings that the system frequently has errors that prevent it from performing input on the computer help to clarify this. The HMIS is unable to directly know whether drugs are available because it is unable to view the drug inventory (Atikah, Parhatiwi, Pertiwi, & Utami, 2021; Massie, Gunaseelan, Waljee, Brummett, & Schwalb, 2021)

#### **8. Standard Operating Procedure (SOP)**

In accordance various literature sources reviewed and examined, factors influencing waiting time for outpatient drug prescriptions in hospitals is standard operating procedures (SOPs) (Suryana, 2018). Standard operating procedures are one of the factors affecting the waiting time for outpatient prescription drugs in hospitals. Standard operating procedures for outpatient prescription services are available, but not all employees acknowledge because not all of them receive socialization or explanations associated with SOPs. Thus, in conducting out services prescriptions are not in accordance with SOPs and merely follow habits. Another reason is that using SOPs will make service delivery take more time. Furthermore, because the person in charge of services is outside the purview of the pharmacy department, there is no special supervision on the suitability of employee performance with the SOP (Purwandari et al., 2017).



## CONCLUSION

Based on the results of a review of 12 articles which have been performed, the results of the factors affecting the length of waiting time for outpatient drugs at the hospital are acquired, that is, when receiving a prescription there is a delay because of the drug vacancy factor at the pharmacy depot or in the pharmacy warehouse when providing etiquette to some patients who request to write down the utilization of the drug when working on a prescription, the compounding officer merely has one person, occasionally the prescriptions pile up so that it takes a long time to provide prescription services when the patient's prescription leaves the waiting room and the online-based hospital program. The most dominant and affecting factors on the waiting time of outpatient drugs at the hospital are prescription reception, providing etiquette, preparation of prescription drugs, and submitting drugs. Studies that emphasize on the identification of the inhibiting factors that prolongs of the pharmacy service in every process steps of drug outpatients service based on the types of the prescriptions need to be conducted in the further. Moreover that, further analysis should also be performed to assess the effects of the length drugs prescription service waiting time on the pharmaceutical service quality and patients' satisfaction in hospitals.

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## REFERENCES

- Alburikan, K. A., AbuAlreesh, A., Alenazi, M., Albabtain, H., Alqouzi, M., Alawaji, M., & Aljadhey, H. S. (2018). Patients' understanding of prescription drug label instructions in developing nations: The case of Saudi Arabia. *Research in Social and Administrative Pharmacy*, 14(5), 413–417. <https://doi.org/10.1016/j.sapharm.2017.05.004>
- Amalia, T., & Ramadhan, D. K. (2021). Evaluasi Waktu Tunggu Pelayanan Resep Rawat Jalan Berdasarkan PMK Nomor 129 Tahun 2008 Di Rumah Sakit X. *Prosiding Seminar Nasional UNIMUS*, 4, 759–767. Retrieved from <https://prosiding.unimus.ac.id/index.php/semnas/article/view/848>
- Amaliany, A., Hidana, R., & Maryati, H. (2018). Gambaran Waktu Tunggu Pelayanan Obat Instalasi Farmasi Rawat Jalan Rumah Sakit Umum Daerah Kota Bogor Tahun 2018. *Jurnal Mahasiswa Kesehatan Masyarakat*, 1(1), 1–7. <https://doi.org/10.32832/pro.v1i1.1421>
- Arini, H. D., Y, A. N., Suwastini, A., Tinggi, S., & Mahaganesha, F. (2020). Waktu Tunggu Pelayanan Resep Di Depo Farmasi RS X. *Lombok Journal of Science (LJS)*, 2(2), 40–46. Retrieved from <https://e-journal.unizar.ac.id/index.php/mathscience/article/view/271>
- Athfaal, T., Pratiwi, R. I., & Santoso, J. (2019). Waktu Tunggu Pelayanan Resep Pasien Rawat Jalan di RSI PKU Muhammadiyah Singkil Kabupaten Tegal.
- Atikah, N., Parhatiwi, S. N., Pertiwi, A. D., & Utami, E. F. (2021). Identification of waste : DOWNTIME in the outpatient prescription services at the pharmacy installation of Rumah Sakit Islam Siti Hajar Mataram. *Jurnal Ilmiah Farmasi (Scientific Journal of Pharmacy)*, 17(2), 107–114. <https://doi.org/10.20885/jif.vol17.iss2.art1>
- Azrifitria, Fauziah, S., & Nur, A. (2019). The Impact of Pharmacists ' Interventions to Prevent Medication Errors at a Tertiary Hospital in Central Jakarta , Indonesia. *Pharmaceutical and Biomedical Sciences Journal*, 1(1), 1–6. <https://doi.org/10.15408/pbsj.v1i1.12643>
- Bardwell, G., Ivsins, A., Socías, M. E., & Kerr, T. (2021). Examining factors that shape use and access to diverted prescription opioids during an overdose crisis: A qualitative study in Vancouver, Canada. *Journal of Substance Abuse Treatment*, 130(April), 108418. <https://doi.org/10.1016/j.jsat.2021.108418>
- Fadhilah, H., Indriyani, D. N., & Andriati, R. (2019). Waktu Tunggu Pelayanan Resep Pasien Rawat Jalan di Rumah Sakit Umum Kota Tangerang Selatan Tahun 2018. *Edu Masda*

- Journal*, 3(1), 41. <https://doi.org/10.52118/edumasda.v3i1.26>
- Faulin, D. S., Hartono, B., & Wahyudi, A. (2019). Analisis Waktu Tunggu Pelayanan Resep Pasien JKN Rawat Jalan Di Unit Farmasi RS Prof. DR. Tabrani Pekanbaru Tahun 2018. *Akrab Juara*, 4(3), 47–64. Retrieved from <https://akrabjuara.com/index.php/akrabjuara/article/view/709/609>
- Fauzia, U., Setiawati, E. P., & Surahman, E. S. (2017). Analysis of Waiting Time for Filing Prescriptions in Hospital Pharmacy. *Pharmacology and Clinical Pharmacy Research*, 2(3). <https://doi.org/10.15416/pcpr.v2i3.16226>
- Febrianta, N. S., Sundari, S., & Pudjaningsih, D. (2017). Waiting Time Analysis of Pharmaceutical Services with Queue Method In PKU Muhammadiyah Hospital Bantul. *International Journal of Scientific and Research Publications*, 7(9), 54. Retrieved from <https://www.ijserp.org/research-paper-0917.php?rp=P696768>
- Firmansyah, Y. W., Fuadi, M. F., Ramadhansyah, M. F., Sugистер S. F., Widyantoro, W., Lewinsca, M. Y., ... Hardiyanto, A. (2021). Keberadaan Plastik di Lingkungan, Bahaya terhadap Kesehatan Manusia, dan Upaya Mitigasi: Studi Literatur. *Jurnal Serambi Engineering*, 6(4), 2279–2285. <https://doi.org/10.32672/jse.v6i4.3471>
- Fitriah, N., Ika Faramita, N., & Wiyanto, S. (2016). Penyebab dan Solusi Lama Waktu Tunggu Pelayanan Obat di Instalasi Farmasi Rawat Jalan Rumah Sakit. *Jurnal Kedokteran Brawijaya*, 29(3), 245–251. <https://doi.org/10.21776/ub.jkb.2016.029.03.2>
- Hanisu, H., Indar, & Rum, M. (2021). Pengaruh kualitas layanan dan manajemen farmasi terhadap keputusan beli ulang obat pasien rawat jalan di rumah sakit labuang baji makassar. *Competitiveness*, 10(1), 72–82. <https://doi.org/10.26618/competitiveness.v10i1.5515>
- Hutabarat, L. (2017). Studi Literatur Kepuasan Pasien Terhadap Pelayanan Di Tempat Pendaftaran Pasien Rawat Jalan. *Journal of Chemical Information and Modeling*, 53(9), 1689–1699. Retrieved from <https://ojs.stikesawalbrosbatam.ac.id/index.php/MJSABB/article/view/73>
- Jaya, M. K. A., & Apsari, D. P. (2018). Gambaran Waktu Tunggu Dan Identifikasi Faktor Yang Mempengaruhi Lama Waktu Tunggu Pelayanan Obat Atas Resep Dokter Di Puskesmas Kota Denpasar. *Jurnal Ilmiah Medicamento*, 4(2), 94–99. <https://doi.org/10.36733/medicamento.v4i2.861>
- Kautsar, A. P., Nurhayati, N. R., & Gozali, D. (2017). Effect of prescription waiting time on patient satisfaction mediated by service quality of pharmacy unit in public hospital in Bandung city. *National Journal of Physiology, Pharmacy and Pharmacolog*, 7(11), 1230–1234. <https://doi.org/10.5455/njppp.2017.7.0621219072017>
- Kementerian Kesehatan RI. (2008). *Keputusan Menteri Kesehatan Republik Indonesia Nomor : 129/Menkes/SK/II/2008 Tentang Standar Pelayanan Minimal Rumah Sakit*.
- Lestari, D. D., Parinduri, S. K., & Fatimah, R. (2020). Hubungan Waktu Tunggu Pelayanan Rawat Jalan Terhadap Kepuasan Pasien Di Poliklinik Spesialis Penyakit Dalam RSUD Kota Bogor Tahun 2018-2019. *PROMOTOR Jurnal Mahasiswa Kesehatan Masyarakat*, 3(3). <https://doi.org/10.32832/pro.v3i3.4172>
- Loh, B. C., Liew, J. E., Teo, C. A., Khairuddin, N. M., & Fairuz, F. B. (2017). Impact of value added services on patient waiting time at the ambulatory pharmacy Queen Elizabeth Hospital. *Pharmacy Practice*, 15(1), 1–7. <https://doi.org/10.18549/PharmPract.2017.01.846>
- Mare, E. B., Citraningtyas, G., & Jayanto, I. (2021). Evaluation of Waiting Time for Outpatient Prescription Services at the Pharmacy Installation of The Tagalandang Hospital. *Indonesian Journal of Pharmaceutical and Clinical Research*, 10(4), 54–61. <https://doi.org/10.35799/pha.10.2021.37408>
- Margiluruswati, P., & Irmawati, L. I. (2017). Analisis Ketepatan Waktu Tunggu Pelayanan Resep Pasien JKN dengan Standar Pelayanan Minimal Rumah Sakit 2017 (Studi di UPF Rawat Jalan RSUD Bhakti Dharma Husada). *Jurnal Manajemen Kesehatan Yayasan RS.Dr. Soetomo*, 3(1), 115–126. Retrieved from <https://jurnal.stikes-yrsds.ac.id/index.php/JMK/article/view/84/82>

- Massie, L., Gunaseelan, V., Waljee, J., Brummett, C., & Schwalb, J. M. (2021). Relationship between initial opioid prescription size and likelihood of refill after spine surgery. *Spine Journal*, 21(5), 772–778. <https://doi.org/10.1016/j.spinee.2021.01.016>
- Meghani, S. H., Rosa, W. E., Chittams, J., Vallerand, A. H., Bao, T., & Mao, J. J. (2020). Both Race and Insurance Type Independently Predict the Selection of Oral Opioids Prescribed to Cancer Outpatients. *Pain Management Nursing*, 21(1), 65–71. <https://doi.org/10.1016/j.pmn.2019.07.004>
- Miftahudin. (2019). Analisis Waktu Tunggu Pelayanan Resep Rawat Jalan Di Instalasi Farmasi Rumah Sakit Umum Universitas Kristen Indonesia Jakarta Tahun 2016. *Informatika Kedokteran : Jurnal Ilmiah*, 2(1), 16–26. Retrieved from <https://ejournal.gunadarma.ac.id/index.php/medif/article/view/2293/1838>
- Novitasari, M. (2019). Analisis Pengelolaan Obat Pada Tahap Distribusi dan Penggunaan Obat Di Instalasi Farmasi RSUD Surakarta Tahun 2016. *Jurnal Kesehatan Tujuh Belas*, 1(1), 41–52. Retrieved from <https://ojs.stikestujuhbelas.ac.id/index.php/jurkestb/article/view/15/8>
- Nurlaila, Marchaban, & Yuniarti, E. (2022). Penggunaan Lean Hospital Untuk Meningkatkan Efisiensi Pelayanan Resep Rawat Jalan RSU PKU Muhammadiyah Delanggu. *Majalah Farmasetika*, 18(2), 113–121. <https://doi.org/10.22146/farmasetik.v1i1.58990>
- Nursalam. (2014). *Manajemen Keperawatan, Aplikasi dalam Praktik Keperawatan Profesional* (4th ed.). Jakarta: Salemba Medika.
- Okyaviani, D., Andayani, T. M., & Pamudji, G. W. (2019). Analisis Pelaksanaan Standar Pelayanan Minimal Rumah Sakit Bidang Farmasi Di Instalasi Farmasi Rumah Sakit Umum Daerah Dr Abdul Aziz Singkawang. *Jurnal Farmasi & Sains*, 2(2). Retrieved from <https://journal.stifera.ac.id/index.php/jfsi/article/view/25/26>
- Ostrowska, M., Drozd, M., Patryn, R., & Zagaja, A. (2022). Prescriptions as quality indicators of pharmaceutical services in Polish community pharmacies. *BMC Health Services Research*, 22(373), 1–8. <https://doi.org/10.1186/s12913-022-07772-2>
- Pizer, S. D., & Prentice, J. C. (2011). Time is money: Outpatient waiting times and health insurance choices of elderly veterans in the United States. *Journal of Health Economics*, 30(4), 626–636. <https://doi.org/10.1016/j.jhealeco.2011.05.004>
- Purwandari, N. K., Suryoputra, A., & Pawelas Arso, S. (2017). Analisis Waktu Tunggu Pelayanan Resep Pasien Rawat Jalan Di Depo Farmasi Gedung MCEB RS Islam Sultan Agung. *Jurnal Kesehatan Masyarakat*, 5(1). <https://doi.org/https://doi.org/10.14710/jkm.v5i1.14983>
- Rahman, F. (2020). *Analisis Waktu Tunggu Pelayanan Obat Dengan Menggunakan Konsep Lean Di Apotek Rawat Jalan RSUD Abdul Wahab Sjahranie - Samarinda Tahun 2019 [Tesis]*. Universitas Hasanudin.
- Rastogi, S., Tiwari, V., Jatav, S. P., Singh, N., Verma, S., Verma, S., ... Singh, G. (2022). A survey of patients visiting an Ayurvedic teaching hospital for factors influencing the decision to choose ayurveda as a health care provider. *Journal of Ayurveda and Integrative Medicine*, (xxxx), 100539. <https://doi.org/10.1016/j.jaim.2021.100539>
- Rizkiyani, C., & Emelia, R. (2022). Evaluasi Skrining Kelengkapan Resep Pasien BPJS Rawat Jalan Di RSAU Lanud Sulaiman Bnadung. *Cerdika: Jurnal Ilmiah Indonesia*, 2(1), 84–89. <https://doi.org/10.36418/cerdika.v2i1.323>
- Sari, E. D. M., Wahyuni, K. I., & Anindita, P. R. (2020). Evaluasi Waktu Tunggu Pelayanan Resep Pasien Rawat Jalan Di Rumah Sakit Anwar Medika. *Journal of Pharmacy Science and Technology*, 2(1), 80. <https://doi.org/10.30649/pst.v2i1.100>
- Snoswell, C. L., Cossart, A. R., Chevalier, B., & Barras, M. (2022). Benefits, challenges and contributors to the introduction of new hospital-based outpatient clinic pharmacist positions. *Exploratory Research in Clinical and Social Pharmacy*, 5, 100119. <https://doi.org/10.1016/j.rcsop.2022.100119>
- Suryana, D. (2018). Upaya Menurunkan Waktu Tunggu Obat Pasien Rawat Jalan dengan Analisis Lean Hospital di Instalasi Farmasi Rawat Jalan RS Atma Jaya. *Jurnal ARSI*, 4(2), 14. Retrieved from <https://journal.fkm.ui.ac.id/arsi/article/view/2553>

- Tomi, Hidayati, N. R., & Bachtiar, F. F. (2019). *Analisis Waktu Tunggu Pelayanan Resep Obat Di Instalasi Farmasi Rawat Jalan RSUD Karawang*. 1(2), 151–156. Retrieved from <https://ojs.stfmuhammadiyahcirebon.ac.id/index.php/mh/article/view/248>
- Wei, L., Li, S., Yuan, Y., Yao, Z., Huang, Y., Yue, D., ... Fei, X. (2018). Prediction model of outpatient flow based on behaviour data of outpatients in a Chinese tertiary hospital. *Computers in Industry*, 97, 10–16. <https://doi.org/10.1016/j.compind.2018.01.016>
- Wikandari, D., & Mahmuluddin. (2021). Evaluasi Waktu Tunggu Pelayanan Resep Pasien Rawat Jalan Di Instalasi Farmasi RSUD Dr. R. Soedjono Selong. *Jurnal Farmasi Dan Kesehatan Indonesia*, 1(2), 27–32. Retrieved from <http://journal.ukrim.ac.id/index.php/jfki/article/view/237>
- Yani, F., Maraiyuna, S., & Vonna, A. (2022). Evaluasi Waktu Tunggu Setelah Redesign dan Penerapan Lean Pharmacy Pada Pelayanan Farmasi Rawat Jalan. *Journal of Medical Science*, 3(1), 19–30. <https://doi.org/10.55572/jms.v3i1.61>
- Yunus, M. (2020). Evaluation of Waiting Time for Outpatient Prescription Services at the Pharmacy Installation at the Universitas Sumatera Utara Hospital. *Indonesian Journal of Clinical Pharmacy*, 03(2), 54–61. <https://doi.org/10.32734/idxpcr.v3i2.4430>