

# Drug Management and Service Quality in Outpatient Pharmacies at the Haji Padjonga Daeng Ngalle Regional General Public Hospital in Takalar Regency, Indonesia

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## ABSTRACT

**Background:** The provision of comprehensive individual health care services in outpatient units is intricately linked to drug management practices and the quality of available pharmacy services, ensuring optimal medication supply and use. **Objective:** This study aimed to assess the practices of drug management and the quality of outpatient pharmacy services at Haji Padjonga Daeng Ngalle (HPDN) Regional General Public Hospital in Takalar Regency, Indonesia. **Method:** The evaluation of drug management involves conducting in-depth interviews in the outpatient unit, focusing on planning, budgeting, procurement, storage, and distribution, compared with government regulatory standards. The quality of pharmacy services was assessed using the Solvin technique with 100 respondents, evaluating five dimensions: physical evidence, reliability, responsiveness, assurance, and empathy, using the servqual questionnaire with a Likert scale (ranging from very dissatisfied = 1, dissatisfied = 2, somewhat satisfied = 3, satisfied = 4, to very satisfied = 5). **Results:** Research findings indicated the level of compliance of drug management with regulations as follows: planning (66.67%), budgeting (60%), procurement (100%), storage (100%), and distribution (100%). The quality of pharmacy services demonstrated high questionnaire validity ( $r \geq 0.714$ ), and the average dimension was a score of 4, indicating satisfactory satisfaction levels. **Conclusion:** This study reflects HPDN hospital's compliance with regulations while identifying specific areas for improvement to enhance the quality of pharmacy services.

**Keywords:** Drug management, patient service quality, hospital, outpatient unit.

## INTRODUCTION

Ensuring high-quality patient care is a fundamental objective of healthcare institutions worldwide. Within the healthcare continuum, outpatient pharmacies play a crucial role in delivering essential medications and services to patients<sup>1</sup>. The quality of treatment given by outpatient pharmacies and efficient drug management techniques have a significant impact on patient outcomes and overall satisfaction with healthcare delivery<sup>2</sup>. By optimizing drug management processes and enhancing service quality, healthcare providers can significantly and positively impact patient care<sup>3</sup>.

In outpatient settings, patients often rely on pharmacies within healthcare facilities to obtain prescribed medications and receive pharmaceutical advice and support<sup>4</sup>. Effective drug management practices, including procurement, storage, distribution, and dispensing, are essential for guaranteeing the availability of necessary medications and their safe and appropriate use by patients<sup>5</sup>. Furthermore, the quality of pharmacy services directly impacts patient outcomes and satisfaction levels. Patients expect timely access to medications, accurate information about their usage and potential side effects, and supportive interactions with pharmacy staff. Therefore, ensuring high-quality pharmacy services is integral to enhancing patient care and overall health care delivery in outpatient settings<sup>6</sup>.

At Haji Padjonga Daeng Ngalle Regional General Public Hospital (HPDN), the outpatient pharmacy serves as a primary point of contact for many patients in Takalar Regency, Indonesia, providing them with vital medications and pharmaceutical services. However, to achieve these goals, it is imperative to conduct a comprehensive evaluation of the current drug management practices and service quality standards within the outpatient pharmacies at HPDN.

By identifying areas of strength and areas in need of improvement, this evaluation will give healthcare professionals and administrators important information that they may use to plan focused interventions that will improve patient care and satisfaction. As a result, this study looked into the specifics of medication administration and service quality in HPDN's outpatient pharmacies.. By examining various aspects such as medication procurement, storage, distribution, and patient service experience, this research aims to identify opportunities for enhancement and contribute to the continuous improvement of patient care delivery in outpatient settings.

## MATERIALS AND METHODS

### Population and Research Sample

In order to assess medication management, the following staff members participated in the

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study: the heads of the HPDN hospital's outpatient pharmacy room, pharmaceutical quality management section, head of the pharmacy installation, head of the pharmacy supply warehouse, head of medical support section, and head of the finance section. In addition, 100 patients who visited the outpatient pharmacy during the last 3 months (March to May) of 2023 were included. The sample size was calculated using the Slovin formula as follows:

$$n = \frac{N}{1 + N e^2}$$

Description:

n = Sample

N= Population size

e = Estimated margin of error with the following conditions:

Value of e = 0.1 (10%) for a large population

Value of e = 0.2 (20%) for a small population

### Drug Management Administration

The Drug Management Administration comprises several stages, including planning, budgeting, procurement, storage, and distribution of drugs. In the context of Haji Padjonga Daeng Ngalle (HPDN) hospital, this method will be evaluated and compared with government regulations through direct interviews regarding pharmaceutical service standards in the hospital, assessing compliance or noncompliance.

1. Planning: The planning stage evaluates the available budget, prioritization of drugs, remaining inventory, past usage data, waiting time for orders, and development plans.
2. Budgeting: Drug budgeting is evaluated concerning the available budget, drug prices according to health insurance claims, timely payment of invoices, budget sources from public service agencies, and other spending sources.
3. Procurement: The procurement stage evaluates drug raw materials, which must be accompanied by analysis certificates, hazardous materials including Material Safety Data Sheets (MSDS), marketing authorization, and a minimum shelf life of 2 years.
4. Storage: Drug storage is evaluated concerning storage areas not mixed with other items, methods used alphabetically according to the principles of FEFO and FIFO, special storage for narcotics, psychotropics, thermolabile, and high-alert drugs, cabinets protected from dust, humidity, and light, and equipped with stock cards using cabinets.
5. Distribution: The drug distribution stage is evaluated for centralized or decentralized methods based on outpatient care, efficiency and effectiveness, and the presence of rooms for prescription reception and compounding.

### Patient Service Quality

To assess the quality of patient service of 4.248 patients who visited the outpatient pharmacy of HPDN over the last 3 months were included. From this total, 100 patients were selected as a sample using the Slovin method. The criteria for research respondents included patients aged over 17 years, both male and female, with various occupations, who had obtained medication from the outpatient pharmacy of the pharmacy installation (inclusion criteria). The questionnaire consisted of 15 statements presented (Table 1) on a five-point Likert scale with options ranging from very dissatisfied = 1, dissatisfied = 2, neutral = 3, satisfied = 4, and very satisfied = 5. This survey was conducted over four weeks from June to July 2023, as shown in Table 1. After collecting the questionnaires, they were analyzed using quantitative testing with the statistical application SPSS version 21.

## RESULT AND DISCUSSION

### Drug Management Administration

This study was conducted at the outpatient pharmacy unit in the Pharmacy Installation of the HPDN Regional General Hospital in Takalar District. Interview techniques were employed with several informants considered to have the capacity to understand and participate in the drug management process, starting from planning, budgeting, procurement, storage, and distribution of drugs<sup>7</sup>. The informants involved in this study included the Head of Pharmacy Installation, Head of Pharmacy Supply Warehouse, Head of Medical Support Section, Head of Pharmaceutical Quality Management Section, Head of Outpatient Pharmacy Room, and Head of Finance Section. Characteristic descriptions include gender, age, education, and occupation (Table 2). Based on the demographic profile characteristics of the respondents, the female respondents provided more assessments of the quality of service at the outpatient pharmacy. The majority of respondents were aged between 28 and 38 years, with the highest education being a bachelor's degree, indicating that respondents can assess objectively and rationally. The occupation as an entrepreneur is mostly recorded as respondents and can be found in answering questionnaire statements.

### Planning

Planning is the initial stage of drug procurement. Drug planning is carried out to determine the quantity and timing of pharmaceutical preparations, medical devices, and medical consumables based on the selection that has been made<sup>8</sup>. The Food and Drug Administration states that drug needs planning is an important and determining aspect in drug management because the planning of needs affects drug procurement, distribution, and use in health care units. Based on the interview results, planning at the Pharmacy Installation of Haji Padjonga Daeng Ngalle Regional General Hospital in Takalar District is carried out by the pharmacist as the person in charge of the warehouse and pharmacy supplies, who coordinates with the finance unit as part of budgeting. Planning activities use the consumption method. The advantage of this consumption method is that it is easier to identify drug needs. Drug planning is performed by examining the records of drug use in the previous year plus a 30% buffer. The addition of a buffer protects drug stocks from delays in drug delivery, production delays, or unexpected sales increases. In practice, the consumption method is still considered less suitable for managing drug supplies because procurement is based only on a need and does not consider unpredictable diseases. As a result, the existing stock cannot meet the high demand, leading to drug shortages. Based on the compliance of the planning stage compared to regulations, a percentage of 66.6% was obtained, indicating that the planning process is not yet in accordance with applicable standards. Incompatibility in the applied planning stage exists in the available budget and ordering lead time. Ordering lead time encompasses the period starting from the time the drug is ordered until the drug arrives and is received by the hospital. The application of the lead time concept is necessary to determine the amount of safety stock of drugs, thus avoiding stock shortages or excess drugs<sup>9</sup>.

### Budgeting

Budgeting is a quantitative planning process depicted in financial terms by developing a work plan within a certain timeframe. Typically done for the upcoming year. Based on the interview results, the drug budgeting process at the Pharmacy Installation of Haji Padjonga Daeng Ngalle Regional General Hospital in Takalar District is determined by the hospital's general services expenditure budget. The funds allocated in the hospital's general services expenditure budget for drugs amount to approximately 7 million annually. The percentage of the budget reaches 25.56% of the total hospital expenditure budget. This budget

is still below the average standard set by the Indonesian Ministry of Health, which is 40-50% of the total hospital budget. The imbalance between the amount of budget available and the actual drug needs of patients in the hospital leads to drug shortages and delayed payment of drug invoices. Through interviews with the finance department, it can be explained that the risk occurring in the drug payment stage is related to late payments that have passed the due date due to the hospital's abnormal financial condition, namely its relatively low income, thus affecting the drug procurement process from distributors and hindering health care services. Based on the compliance of the budgeting stage with regulations, a percentage of 60% was obtained, indicating that this stage is not yet in accordance with applicable standards. Incompatibility in the budgeting process is seen in the available budget size and untimely payment of overdue invoices. The limited available budget causes the payment for drugs from distributors to be delayed, resulting in it being recorded as debt. Consequently, the drug procurement process is delayed because drug delivery services to the pharmacy installation are temporarily suspended. Budget sources should be increased to boost hospital income. The available funds need to be managed as efficiently as possible so that the drug supply in the hospital meets the needs and planning accordingly <sup>10</sup>.

### Procurement

Procurement is the activity derived from previously made drug needs planning and approved for realization through direct purchasing or tender processes from distributors, pharmaceutical preparation manufacturing, or donations/grants. The procurement process at Haji Padjonga Dg Ngalle Regional General Hospital begins with the receipt of the planning list made by the pharmacy warehouse department, which has previously checked the dwindling or empty remaining drug stock and recorded it on a defect sheet. The list is then handed over to the head of the pharmacy installation to estimate drug needs based on previous drug usage. After obtaining the inventory count, it is then handed over to the procurement officer in the pharmacy supplies warehouse department to prepare a purchase order for the distributing party. Based on the compliance table with regulations in the procurement stage, a percentage of 100% is obtained, which is in

accordance with the current applicable standards. The ordering method used is through an e-purchasing application and direct purchasing from distributors with a 30-day payment term for drugs. If the required drugs are not listed in the electronic catalog, the procurement officer performs direct purchasing. The procurement department then compares the composition of each drug and seeks offers with the lowest prices. This is intended to ensure that the efficiency of budget use is maintained. Procurement is conducted at the end of the year and evaluates empty items at the end of the month. The constraints faced by the procurement department include being unable to place orders due to delayed drug payments that do not comply with the predetermined deadlines. Each distributor provides a payment period of 60 to 90 days. If it exceeds the specified deadline and payment has not been made, the distributor will automatically lock access to further ordering services <sup>11</sup>.

### Storage

Drug storage is one of the methods used to maintain the safety of pharmaceutical supplies from physical disturbances and theft that can degrade the quality and efficacy of a drug. Pharmaceutical preparations and disposable medical devices should be stored according to pharmaceutical standards to ensure their quality and safety. Based on the observations conducted in the outpatient pharmacy unit and storage warehouse of the Pharmacy Installation of Haji Padjonga Daeng Ngalle Regional General Hospital in Takalar District, it is evident that drug storage has been performed properly. This is also supported by the compliance table, which shows a percentage of 100% for the storage stage following regulations. There is a dedicated space for storing drugs, especially those requiring special handling, such as thermolabile drugs and disposable medical supplies that cannot be mixed with other drugs. However the adequacy of storage shelves is considered insufficient because of the presence of drugs still stacked in some areas. Drug storage is arranged alphabetically, with labeling on storage shelves, and stock cards are placed adjacent to the respective drugs. Regular monitoring or stocktaking is conducted every month to reconcile the physical stock of drugs with the drug stock records. Drug storage utilizes the First Expire First Out (FEFO) and First In First Out (FIFO) systems, and there is color labeling on drugs nearing expiration

**Table 1. Research Questionnaire on Pharmacy Outpatient Service Quality.**

Questionnaire	Attributes	Indicators
1	Tangible	a. Adequacy of seating in the waiting area
2		b. Cleanliness and comfort in the waiting area
3		c. Availability of facilities for patients, such as informational media (posters, leaflets) and weight scales.
4	Reliability	a. Ease of medication retrieval
5		b. Prescribed medications are always available at the pharmacy
6		c. Waiting time for medication service from prescription submission is short
7	Responsiveness	a. Clarity of information provided by staff regarding the received medications
8		b. Speed of staff in serving prescriptions
9		c. Staff service to assist patients with complaints and medication services
10	Assurance	a. Medication packaging is sealed and undamaged
11		b. Medications are not expired
12		c. Ease of identifying staff due to uniforms and identification badges
13	Empathy	a. Friendliness of staff in serving prescriptions
14		b. Staff willingness to answer patient questions politely and kindly
15		c. Staff willingness to repeat medication information kindly and patiently if the patient does not understand

**Table 2. Characteristics of the Research Participants.**

No.	Initial	Age	Position	Education
1	HJ	39	Head of Pharmacy Installation	Bachelor's, Pharmacy
2	MD	44	Head of the Pharmacy Warehouse	Bachelor's, Pharmacy
3	AB	40	Head of the Medical Support Section	Master'
4	MA	30	Head of Pharmaceutical Quality Management	Bachelor's, Pharmacy
5	SNA	54	Head of the Outpatient Pharmacy Ward	Bachelor's, Pharmacy
6	AI	44	Head of the Finance Department	Bachelor's, Pharmacy

**Table 3. Percentage of compliance with the planning stage toward the Ministry of Health Regulation No. 72 of 2016 and the Pharmacy Installation of HPDN Hospital.**

Planning Stage				
No	Ministry of Health Regulation No. 72 of 2016	HPDN Hospital Pharmacy Installation		Interview
		Compliant	Non-Compliant	
1	Availability of budget		√	Interview with the head of the pharmacy warehouse and supplies
2	Priority determination	√		
3	Remaining inventory	√		
4	Previous usage data	√		
5	Ordering the waiting time		√	
6	Development plan	√		
Compliance percentage: 4 of 6 standards (66.6%)				
Budgeting Stage				
1	Available budget		√	Interview with the hospital's finance manager and logistic management head.
2	Drug prices are in accordance with health insurance claims	√		
3	Timely payment of invoices		√	
4	Budget sources are from public service bodies	√		
5	There are other budget sources	√		
Compliance percentage: 3 of 5 standards (60%)				
Procurement Stage				
1	Raw materials must be accompanied by a certificate of analysis	√		Interview with the head of the pharmacy warehouse and supplies.
2	Hazardous materials must include Material Safety Data Sheets (MSDS)	√		
3	Pharmaceutical preparations, medical devices, and disposable medical supplies must have marketing authorization numbers	√		
4	Minimum expiry date (expiration date) of 2 (two) years, except for certain pharmaceutical preparations, medical devices, and disposable medical supplies (vaccines, reagents, etc.), or under certain justifiable conditions	√		
Compliance percentage: 4 of 4 standards (100%)				
Storage Stage				
1	Storage areas are not used to store other items that cause contamination.	√		Interview with the head of the pharmacy warehouse and supplies.
2	The storage method is arranged alphabetically according to the principles of FEFO and FIFO	√		
3	Storage places considering room temperature	√		
4	Special storage cabinets for narcotics, psychotropics, thermolabile, and high-alert items	√		
5	Neat cabinets protected from dust, humidity, and excessive light	√		
6	Equipped with stock cards	√		
7	Using cabinets, racks, and pallets	√		
Compliance percentage: 7 of 7 standards (100%)				
Distribution Stage				
1	Centralization or the centralization method	√		Interview with the head of the outpatient pharmacy department and pharmacy quality management.
2	Distribution of drugs based on individual outpatient prescriptions	√		
3	Efficiency and effectiveness of existing resources	√		
4	Separate rooms are available for receiving prescriptions and compounding	√		
Compliance percentage: 4 of 4 standards (100%)				

**Table 4. Characteristics of the respondents.**

Characteristic	Category	%
Gender	Male	22
	Female	78
Total		100
Age	17-27 years	12
	28-38 years	32
	39-49 years	25
	>50 years	31
	Total	100
Education	Elementary	18
	Junior High	13
	High School	19
	Bachelor's	50
	Total	100
Occupation	Civil Servant	7
	Entrepreneur	62
	Others	31
	Total	100

**Table 5. Uji Validitas Kuesioner Kualitas Pelayanan.**

Questionnaire	Attribute	Mean Score	Validity coefficient (r)	Critical r-value (α = 5%)	Status	Cronbach Alpha	Status
1	Tangibel	4.35	0.813	0.195	Valid	0.965	Reliabel
2	Tangibel	4.68	0.725	0.195	Valid	0.967	Reliabel
3	Tangibel	4.59	0.740	0.195	Valid	0.966	Reliabel
4	Realibility	4.50	0.913	0.195	Valid	0.963	Reliabel
5	Realibility	4.43	0.714	0.195	Valid	0.968	Reliabel
6	Realibility	4.34	0.916	0.195	Valid	0.963	Reliabel
7	Responsiveness	4.50	0.913	0.195	Valid	0.963	Reliabel
8	Responsiveness	4.40	0.827	0.195	Valid	0.965	Reliabel
9	Responsiveness	4.47	0.857	0.195	Valid	0.964	Reliabel
10	Assurance	4.50	0.901	0.195	Valid	0.963	Reliabel
11	Assurance	4.70	0.752	0.195	Valid	0.967	Reliabel
12	Assurance	4.68	0.725	0.195	Valid	0.967	Reliabel
13	Empathy	4.70	0.960	0.195	Valid	0.962	Reliabel
14	Empathy	4.70	0.934	0.195	Valid	0.962	Reliabel
15	Empathy	4.51	0.815	0.195	Valid	0.965	Reliabel

(six months before expiration) to ensure that they are used before their expiration date<sup>12</sup>. In addition, special cabinets are available for storing protected drugs, such as narcotics, psychotropic drugs, and drugs classified as high alert. Based on interviews regarding the condition of the storage room, it is explained that some areas have issues with room cooling, resulting in suboptimal storage temperatures. This condition can affect drug stability. Therefore, closer monitoring of drugs in these rooms is required, or immediate repair of the existing room cooling systems should be conducted.

### Distribution

In the distribution process at the outpatient unit, based on direct observations, it is conducted through the Hospital Management Information System (HMIS) using electronic prescriptions sent from each service in the general clinic. After the general clinic staff finishes sending their prescriptions (Table 1), patients are directed to the outpatient pharmacy to redeem their medications, bringing their BPJS Kesehatan (Healthcare and Social Security Agency) eligibility letter. Information regarding the drug distribution mechanism at the Pharmacy Installation of Haji Padjonga Daeng Ngalle Regional General Hospital in Takalar District was obtained from interviews with the head of the warehouse and pharmacy supplies department. The drug

distribution process is conducted using a centralized system that is centralized in one place, namely the pharmacy installation. Distribution is performed when there is a request from outpatient pharmacy services, inpatient services, depots, and small operating rooms to the pharmacy installation. Meanwhile, drug distribution in the outpatient unit is performed through individual prescribing, which is medication services provided to patients individually with prescriptions given by doctors. Prescriptions are only provided to insured patients and do not serve general patients. Based on the compliance of the distribution stage with regulations and pharmacy installation, a percentage of 100% was obtained, indicating that this stage has met the applicable standards. The constraint faced is the imbalance between the demand for drugs and the availability of existing drugs. This condition forces patients to receive prescription copies to complete medications that are out of stock at pharmacies around the hospital. As a form of accountability, the hospital allows patients to claim the cost of purchasing drugs incurred from the pharmacy installation by bringing receipts and proof of drug purchase<sup>13</sup>.

### Quality of patient service

To obtain primary data, the researcher used a questionnaire to be distributed to patients who had obtained medication at the outpatient

pharmacy of the Haji Padjonga Daeng Ngalle Hospital pharmacy installation. To test the validity of the research instrument, the researcher tested its validity and reliability using data collected from 100 respondents (Table 3). The results of the instrument's validity test with Pearson correlation for 15 statements divided into five Servqual dimensions, namely tangible, reliability, responsiveness, assurance, and empathy, obtained the calculated r-value. Each item met the requirement of  $> 0.195$ ; thus, these statements were considered valid and could be continued (see Table 4). The results of the instrument's reliability test with Cronbach's alpha for the physical evidence, reliability, responsiveness, assurance, and empathy questionnaires obtained Cronbach's alpha values that met the requirements ( $> 0.600$ ), indicating that the data used are reliable<sup>14</sup>.

The descriptive statistics of service quality from the five dimensions are presented in Table 4. The tangible dimension in Statement 3 was rated lower than the other statements. This statement concerns the adequacy of seating in the waiting area. The high number of patient visits per day resulted in the seating capacity being insufficient to accommodate all waiting patients. This was considered satisfactory, although some patients still rated it as satisfactory enough due to patients not getting seats.

Additionally, statement six was also considered to have a low value compared with all statements. In this statement concerning the waiting time for prescription services since the prescription was submitted. The low rating of this statement is consistent with the value of the eighth statement, which is the speed of the staff in serving prescriptions. The average waiting time for medication services in the outpatient pharmacy ranged from 16 to 33 min, and that for compounded prescriptions ranged from 33 to 35 min. This duration is quite long compared with the standards set by the Ministry of Health, which are 15 min for ready-made medication and 30 min for compounded prescriptions. This condition is influenced by the limited human resources available at the outpatient pharmacy, which increases the service time required for the preparation and dispensing of medication. Some patients still gave answers between 3 and 4, indicating a feeling of satisfaction. This indicates that the service provided can be further improved to exceed patient expectations<sup>15-22</sup>.

## CONCLUSION

Based on the results of this study, it can be concluded that the evaluation of drug management and service quality at the outpatient pharmacy unit of HPDN Hospital in Takalar Regency is as follows:

1. The drug management system at the HPDN Hospital Pharmacy Installation, including planning, procurement, receipt, distribution, disposal, and control, is functioning well.
2. However, the management of drugs at the HPDN Hospital Pharmacy Installation is not fully compliant with the Ministry of Health Regulation No. 72 of 2016. This is evident from the percentages of planning at 66.6%, budgeting at 60%, procurement at 100%, storage at 100%, and distribution at 100% with a centralized system.
3. The quality of service is rated as satisfactory on the basis of the survey results. Areas of concern include the assessment of statements regarding the adequacy of seating in the waiting area, waiting time for service from the time the prescription is given, and the speed of personnel in dispensing prescriptions. Therefore, there is a need to improve service quality, particularly in the reliability and responsiveness categories, by focusing on the number of service personnel, both pharmacists and pharmacy assistants, working at the outpatient pharmacy.

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