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Overview of Logistics Management at Niko Pharmacy on Jl. Besar Tj. Anom, Sembahe Baru, Pancur Batu District, Deli Serdang Regency, North Sumatra

Nur Afini Turnip[1], Amanda Aqiilah[2], Azzahra Khairani Siregar[3], Lisca Amalia Putri Br Sinaga[4], Rintan Arzeti[5], Rapotan Hasibuan[6]
[1,2,3,4,5,6]Universitas Islam Negeri Sumatera Utara

***Corresponding Author:** E-mail: nurafiniturnip16@gmail.com

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ABSTRACT

Drug logistics management is an important part of pharmaceutical services to ensure the availability, quality, and safety of drugs. This study aims to describe the implementation of drug logistics management at Niko Pharmacy, Pancur Batu District, Deli Serdang Regency. The study used a qualitative method with a descriptive design. Data were obtained through in-depth interviews and observations of pharmacy owners and pharmacy staff. Aspects studied included planning, budgeting, procurement, storage, distribution, disposal and destruction, recording and reporting, and monitoring and evaluation. The results showed that most drug logistics management activities have been running well. Planning is carried out based on sales data, prescriptions, and patient needs, while drug storage has implemented the FEFO system. Distribution, recording, and monitoring are carried out routinely to maintain drug availability. However, several obstacles were still found, such as budget limitations, delays in drug delivery, manual recording, and the lack of documentation of destruction activities and the results of monitoring and evaluation. Overall, drug logistics management at Niko Pharmacy has been implemented well, but it is necessary to strengthen the documentation and administration system to improve the quality of pharmaceutical services and support the sustainability of optimal drug logistics management.

INTRODUCTION

A pharmacy is a place for drug distribution. In general, pharmacies have two functions, namely providing health services, as well as business premises that apply the principle of profit. The two functions are carried out in tandem, without leaving each other. To achieve the maximum goals of the two functions of the pharmacy, good pharmacy management must be carried out. Pharmacies as one of the pharmaceutical service facilities have an important role in maintaining the availability of drugs for the community. Optimal logistics management not only supports the sustainability of pharmaceutical services, but also contributes to improving the overall quality of health services. Disruptions in the pharmaceutical supply chain and drug shortages can have an impact on therapy delays, increased healthcare costs, and decreased patient satisfaction. Therefore, evaluations of the implementation of drug logistics management at the pharmacy level need to be carried out periodically to ensure that all stages of drug management run according to standards and are able to meet the needs of patients in a timely manner[1,2].

Recent research by Jelić et al. (2026) also confirms that inventory management in pharmacies has an important role in maintaining a balance between economic sustainability and public health services. Effective stock management not only ensures the availability of medicines for patients, but also helps pharmacies reduce losses due to expired medicines, overstock, and operational inefficiencies. Therefore, evaluation of the implementation of drug logistics management at the pharmacy level needs to be carried out periodically to ensure that all stages of management have been carried out in accordance with pharmaceutical service standards[3].

Pharmaceutical services in pharmacies play an important role in quality assurance, benefits, safety and efficacy of pharmaceutical preparations and medical devices. Pharmaceutical services also aim to protect patients and the public from irrational use of drugs in the context of patient safety, recording, and reporting. Proper storage of drugs and in accordance with established standards is one of the supporting factors for drug quality assurance. At the pharmacy level, effective logistics management is the main factor in maintaining continuity of service to patients. A good pharmacy management system must be able to ensure the availability of drugs according to the needs of the community and meet the applicable pharmaceutical service standards. Research on pharmacy management systems shows that aspects of planning, procurement, storage, recording, and reporting are important components that must be implemented in an integrated manner to support the quality of pharmaceutical services[4].

Drug logistics management is a series of activities related to the aspects of planning, procurement, storage, distribution and elimination of drugs that are optimally managed in order to achieve the accuracy of the amount and type of drugs and health supplies. The purpose of drug management is to ensure the availability, equity and affordability of drugs of sufficient type and quantity, so that they are easily obtained at the right place and time. Therefore, drugs need to be managed properly, effectively and efficiently[5].

Logistics management is a field of management whose task is specifically to take care of the logistics of drugs and medical devices in health services. The goal is to meet the needs of customers. One of the goals of logistics management is for financial purposes where logistics management can be achieved at a low cost. If the pharmacy does not fulfill the right logistics, the pharmacy's expenses cannot be controlled properly. This will be detrimental to pharmacies. Therefore, good logistics management will not only provide benefits to the availability and assurance of the quantity and quality of drugs, but will also have an impact on reducing the cost of service production so that it becomes more efficient. Good drug logistics management is very important in supporting health services, because it ensures the availability of drugs as needed so that it can increase the effectiveness and quality of services to the community[6,7,8].

According to Permenkes 73 of 2016, drugs/medicinal materials must be stored in the original container from the factory. In the event of exceptions or emergencies where the contents are moved to another container, contamination must be prevented and clear information must be written on the new container. The container should at least contain the name of the drug, the batch number and the expiration date. All drugs/medicinal materials must be stored in appropriate conditions so that their safety and stability are guaranteed. The drug storage area is not used for the storage of other items that cause contamination. The storage system is carried out by paying attention to the form of preparations and drug therapy classes and arranged alphabetically. Drug dispensing uses the FEFO (First Expire First Out) and FIFO (First In First Out) systems. The problem of storing drugs is not only related to the class of drugs stored, but also about the dangers caused by storage. The length of time and temperature of storage can have an impact on the stability and concentration of the drug. The thing to be aware of is that the potential for changes in drug concentration can result in differences in the estimated impact of drug toxicity. The concentration of the drug may increase or decrease depending on the storage conditions[9].

Based on the results of initial observations at the Niko Pharmacy, most of the drug logistics management activities have been carried out well. However, there are still several problems, such as logistics recording that is still carried out manually using stock books, the lack of documentation of drug destruction activities at the pharmacy level, and the lack of written documentation regarding the results of logistics monitoring and evaluation. In addition, there are potential obstacles in the form of delays in the delivery of drugs from distributors and budget limitations that can affect the availability of certain drug stocks.

Based on this description, this study was conducted to find out and describe the implementation of drug logistics management at Niko Pharmacy on Jalan Besar Tanjung Anom, Sembahe Baru Village, Pancur Batu District, Deli Serdang Regency, North Sumatra, so that it can be known that its implementation is in accordance with the principles and standards of drug logistics management and identify problems that still need to be improved in an effort to improve the quality of pharmaceutical services.

RESEARCH METHODS

The research method used is qualitative research with a descriptive design. This research was conducted at the Niko Pharmacy located on Jalan Besar Tanjung Anom, Sembahe Baru Village, Pancur Batu District, Deli Serdang Regency, North Sumatra on June 9, 2026. A qualitative approach was chosen to obtain an in-depth overview of the implementation of drug logistics management which includes planning, budgeting, procurement, storage, distribution, elimination and destruction, recording and reporting, as well as monitoring and evaluation.

The research informants were selected using purposive sampling techniques and consisted of two people, namely pharmacy owners and pharmacy guards who were directly involved in the management of drug logistics. Data collection was carried out through in-depth interviews and observations using checklist sheets. The validity of the data is maintained through source triangulation and triangulation methods by comparing the

results of interviews, observations, and available documents. The data is analyzed through the stages of data reduction, data presentation, conclusion drawn, and verification, then presented descriptively.

RESULTS AND DISCUSSION

Table 1. Observation Results at Niko Pharmacy Jl. Besar Tj. Anom, Sembahe Baru, Pancur Batu District, Deli Serdang Regency, North Sumatra

Indicator	Available	Remarks
A. Logistics Planning	√	
Planning for drug needs is carried out regularly	√	
Minimum stock and maximum stock data for drugs are available	√	
Planning of drug needs based on previous sales/usage data	√	As per the patient's decision
Documents or records of planning for medication needs are available	√	
Safety stock is available to prevent drug vacuums	√	
B. Logistics Budgeting		
There is a special budget for the procurement of drugs	√	
The budget is prepared based on the need for drugs	√	
Budget preparation is carried out regularly	√	
There is a recording of budget realization	√	
C. Logistics Procurement		
Drug procurement is carried out according to the needs of pharmacies	√	
There is a list of suppliers (PBFs) that work together	√	
Procurement is carried out according to a predetermined schedule	√	
An examination of the amount and condition of the drug upon receipt	√	
There is proof of receipt of the drug (invoice/road letter)	√	
D. Logistics Storage		
The medicine is stored in a clean and organized place	√	
Drug storage applies FIFO/FEFO system	√	FEFO (Medication with the earliest Expired Date must be dispensed first, regardless of when the medication was first received)
Storage room temperature is monitored regularly	√	
Drugs are arranged based on the type or form of the preparation	√	
Damaged and expired drugs are separated from active stock	√	
E. Logistics Distribution		
Medication dispensing is recorded in a stock card or system	√	
Medication is delivered on prescription or request	√	
There is a record of drugs that come out	√	
The amount of medication given is according to the record	√	
Stock check is carried out after distribution	√	
F. Elimination and Destruction of Logistics		
There is a procedure for the removal of damaged or expired drugs	√	Procedure for removing damaged or expired drugs by returning or returning them to the POM Center
Expired drugs are separated from viable stocks	√	
There is a report of the destruction of drugs	√	
Destruction is carried out according to the provisions	√	
Documentation of destruction activities is available	–	Documents for destruction activities are only available at the POM Center
G. Logistics Recording and Reporting		
Stock card or drug logging system available	√	
Registration of incoming drugs is carried out regularly	√	
Medication discharge recording is carried out routinely	√	
Periodic checks of the amount of drug stock	√	

Drug stock data according to available physical conditions	√	
H. Logistics Monitoring and Evaluation		
Monitoring of drug supplies is carried out on a regular basis	√	
Drug stock evaluation is carried out periodically	√	
Monitoring of drugs close to expiration	√	
There is a follow-up on the results of the evaluation	√	
The results of monitoring and evaluation are documented	–	Not documented

Figure 1. Niko Pharmacy

Table 2. Interview Recapitulation Results at Niko Pharmacy Jl. Besar Tj. Anom, Sembahe Baru, Pancur Batu District, Deli Serdang Regency, North Sumatra

No.	Logistics Management Components	Observation and Interview Results	Evaluation
1.	Logistics Planning	Planning for drug needs is carried out routinely based on sales data, prescriptions, drug use history, and patient needs. The informant said that *"The determination of drug needs is usually seen from the data of buyers and drugs that are most often purchased at pharmacies and paying attention to the number of prescriptions that come in every day so that stocks remain available."* In addition, another informant stated *"The need for drugs is determined based on buyer complaints and previous drug use history so that there is no shortage of stock."* Pharmacies have also implemented minimum, maximum, and safety stocks.	The planning has gone well because it is carried out based on real needs and previous drug use patterns.
2.	Logistics Budgeting	Budgeting is carried out using special funds derived from business capital and a revolving capital system from drug sales. The informant stated *"There are special funds for the need to spend on drug stock that comes from the pharmacy's business capital."* Another informant added , *"The logistics fund uses a revolving capital system from the proceeds of drug sales."* The obstacles found are limited capital and increased drug prices.	Budgeting already supports procurement, but more optimal management is needed to anticipate changes in drug prices.
3.	Logistics Procurement	Drug procurement is carried out through Pharmaceutical Wholesalers (PBF) according to the needs of pharmacies. Before ordering, stock checks are carried out and when receiving the quantity, condition, and expiration date of the drug are checked. The informant said , *"If sales come, we will first look at the existing stock, if it starts to run out, it will be ordered."* Another informant stated , *"We order to PBF according to the needs and medicines that patients often seek."*	Procurement has followed procedures, but there are still delays in delivery from distributors.
4.	Logistics Storage	Storage is carried out in a clean and organized place based on the type of drug and applies the FEFO	Storage is in accordance with standards and helps

		system. The informant said *"Drugs are stored according to their respective types and neatly arranged so that the quality is maintained."* Another informant said , *"The expiration date is closer than the use."*	maintain the quality and safety of drugs
5.	Logistics Distribution	Distribution is done directly to patients based on the prescription or buyer's needs. Every drug that comes out is recorded in the stock book. The informant states *"The drug is directly given to the buyer according to the prescription or need."* Another informant said , *"Every time there is an item that comes out, it is immediately recorded so that the stock is monitored."*	Distribution is running well and supports the accuracy of service and stock control.
6.	Logistics Elimination and Destruction	Damaged or expired drugs are separated from active stock and then returned or destroyed through the POM Center. The informant said , *"If there are drugs that have expired, they are usually separated from the stock that is still good."* Another informant said , *"There are no specific documents yet because the destruction was carried out by the POM Center."*	The removal process has been carried out, but the destruction documentation still needs to be improved.
7.	Logistics Recording and Reporting	Recording of incoming and outgoing drugs still uses a manual stock book. The informant said , *"If there are goods coming or going, they are immediately recorded in the stock book."* Another informant added , *"It's still manual because it's more practical and helps to see inventory."*	Recording is routine, but the manual system runs the risk of causing recording errors.
8.	Logistics Monitoring and Evaluation	Monitoring is carried out through routine stock checks, monitoring of drugs close to expiration, and periodic evaluations. The informant said, *"Usually it is routinely checked to know if the stock is starting to be small or something is close* to expiration." Another informant said, *"If there are evaluation results, they are usually corrected immediately."*	Monitoring has been carried out, but the results of the evaluation have not been documented in writing.

Drug Logistics Planning

Logistics planning is a planning that is carried out to take into account the amount of goods needed to prevent stock out and over stock. The goal of logistics planning is to get the right goods, at the right time, with the right quantity, the right conditions, and an affordable cost[10].

The results of the study showed that the planning of drug needs at the Niko Pharmacy was carried out regularly by considering sales data, the number of incoming prescriptions, the history of drug use, and buyer complaints. In addition, pharmacies already have minimum stock, maximum stock, and safety stock to prevent drug vacancies from occurring. Based on the results of the interviews, the planning process involves the Pharmacy Facility Owner (PSA) and pharmacists who jointly determine the type and quantity of drugs to be ordered according to the needs of the service.

The implementation of the planning shows that Apotik Niko has applied the principle of consumption-based planning, which is to use previous usage data as the basis for calculating drug needs. This method is considered effective in maintaining the availability of drugs while reducing the risk of excess or shortage of stock. The existence of safety stock is also an important component in the logistics system because it functions as a backup when there is an increase in demand or delay in delivery from distributors. Research by Simamora et al. (2024) explains that safety stock control is an important part of drug logistics management to ensure continuity of health services and prevent stock outages[11].

This finding is in line with the research of Al Yunus and Maharani (2022) who stated that drug needs planning carried out based on consumption data and service needs can increase the effectiveness of pens managing logistics and ensuring the availability of drugs in a sustainable manner[12].

Drug Logistics Budgeting

Budgeting is an integral part of the logistics management cycle that is closely linked to the planning process. These activities include various attempts to formulate detailed requirements in the form of currency values and estimated total costs. Based on the results of the research, Apotik Niko has special funds that are used for the procurement of medicines. The funds come from business capital and revolving capital systems obtained from the sale of drugs[13].

Budget preparation is carried out based on the need for drugs and the condition of stock available at the pharmacy. Although the available funds are generally still able to meet the needs, the informant stated that limited capital and rising drug prices are often obstacles in the budgeting process.

Budgeting is a very important stage because it determines the ability of health care facilities to provide medicines needed by the community. The availability of adequate funds allows the procurement of drugs to be carried out on time and as needed. On the other hand, budget limitations can cause a reduction in the number of drugs purchased so that it has the potential to interfere with services to patients.

The results of this study are in accordance with the study of Riyanto et al. (2025) which stated that budget limitations and fluctuations in drug prices are the main challenges in pharmaceutical logistics management in Indonesia. Effective budget management is needed to maintain drug availability without causing wasteful operational costs[14].

Drug Logistics Procurement

Drug logistics procurement is the process of providing drugs based on needs that have been planned to ensure the availability of drugs effectively, efficiently, of the right type, the right amount, and on time in supporting health services[15].

The results of observations and interviews show that the procurement of drugs at the Niko Pharmacy is carried out as needed through distributors or Pharmaceutical Wholesalers (PBF) who have collaborated with pharmacies. Before placing an order, the officer first evaluates the stock condition and the need for the most frequently used drugs by the patient. Each drug received is checked for quantity, packaging condition, and expiration date and matched with the receipt invoice.

The procurement process that is carried out based on actual needs shows that there are good inventory control efforts. Drug examination upon receipt is also an important step to ensure the quality and safety of the drugs received. However, this study found that there were obstacles in the form of delays in the delivery of drugs from distributors caused by transportation and distribution factors.

These findings are in line with the research of Riyanto et al. (2025) which states that delays in distribution from suppliers are one of the factors that can disrupt the smooth running of the drug logistics system and cause a decrease in stock availability in health care facilities[14].

Drug Logistics Storage

Drug storage is a method of organizing drugs in a dosage and sequence structure or according to its pharmacology works with inventory control and tries not to store sedatives stored for a long time, using the FIFO and FEFO frameworks[16].

The results of the study show that the storage of drugs at the Niko Pharmacy has been carried out according to standards. Medicines are stored in a clean and organized place, grouped by type and form of preparation, and apply the FEFO (First Expired First Out) system. In addition, the temperature of the storage room is regularly monitored and damaged and expired drugs are separated from the active stock.

The implementation of the FEFO system shows that pharmacies have made efforts to minimize the risk of losses due to expired drugs. This system allows drugs that have a shorter shelf life to be used first so that the quality and safety of the drug are maintained. Good storage also plays a role in maintaining the physical and chemical stability of the drug during storage.

The results of this study are in line with Prabowo's (2025) research which states that the implementation of the FEFO system and supervision of storage conditions is an important factor in maintaining the quality of drugs and reducing the risk of damage and loss of drugs during storage[7].

Drug Logistics Distribution

Distribution is the movement or transfer of products or services from the end consumer, consumer, or user to the distribution channel, as well as the movement of reverse payment to the original creator or supplier. Distribution is also defined as a marketing activity that aims to assist and facilitate the delivery of products and services from producers to customers, as a consequence of appropriate use[17,18].

Based on the results of the study, the distribution of drugs at Apotik Niko is carried out directly to patients according to the doctor's prescription and the needs of the buyer. Each drug that comes out is recorded in the stock book and re-checked before being given to the patient to ensure the suitability of the amount and type of medicine.

The distribution system applied shows that there is good control of the outflow of drugs. Regular recording helps officers monitor inventory and reduce the possibility of stock differences. In addition, checking before drug delivery can improve the accuracy of service and patient safety.

Prabowo's research (2025) explains that the distribution of drugs that are carried out appropriately and well documented can increase the safety of drug use and support the effectiveness of pharmaceutical services[7].

Drug Elimination and Destruction

According to Al Yunus and Maharani (2022), the elimination and destruction of drugs is the process of removing drugs from the inventory list and destroying drugs that can no longer be used in health services. This activity is important to prevent the use of unsuitable drugs and maintain the accuracy of drug inventory data in the logistics system. In addition, Andriani (2026) stated that the elimination and destruction of drugs must be accompanied by complete documentation, such as the minutes of destruction, as a form of administrative accountability and supervision for the management of drugs that are no longer suitable for use[12,19].

The results of the study show that damaged or expired drugs are separated from the active stock and then returned or handed over to the POM Center for the destruction process. However, documentation of the destruction activities is not available directly at the pharmacy because it is on the side of the POM Center.

Drug elimination and destruction is an important part of logistics management to prevent the use of drugs that are no longer suitable for use. The separation of damaged and expired drugs carried out by Apotik Niko shows that there are efforts to protect patient safety. However, the lack of documentation of destruction at the pharmacy level can be a weakness in administrative and accountability aspects. According to Andriani et al. (2026), documentation of the destruction process is an important part of the logistics cycle because it serves as administrative evidence and a monitoring tool for the management of drugs that are no longer suitable for use[19].

Logistics Recording and Reporting

Drug logistics recording and reporting is an activity of recording all drug mutations, starting from drugs received, stored, distributed, used, to remaining inventory. The data is then compiled in the form of a report to determine the availability of drugs and become the basis for planning and procuring the next drug[20].

The results of the study show that the recording of incoming and outgoing drugs is still done manually using stock books. Logistics reporting is carried out regularly, especially for narcotics and psychotropic drugs that have special reporting obligations.

Consistent recording helps maintain consistency between physical stock and administrative data. However, manual recording systems have a higher risk of recording errors than computerized systems. Therefore, the development of pharmaceutical information systems can be an alternative to improve the efficiency and accuracy of logistics data management.

Research by Bala et al. (2023) states that good logistics administration through regular recording and reporting greatly affects the effectiveness of drug inventory supervision and decision-making in pharmaceutical logistics management[21].

Logistics Monitoring and Evaluation

Monitoring is an observation of the progress of the implementation of drug planning, identifying, and anticipating problems that will arise so that action can be taken as early as possible. Furthermore, evaluation is a series of procedures to assess and obtain information about the success of achieving the objectives of the activity, its results, and its impact[22].

Based on the results of the research, monitoring and evaluation at the Niko Pharmacy are carried out routinely through stock checks, monitoring of drugs close to expiration, and inspections from the POM Center. The results of the evaluation are used as corrective materials if deficiencies are found in logistics management. However, monitoring and evaluation activities have not been documented in writing.

Monitoring and evaluation are the control stages that function to assess the effectiveness of the entire logistics management process. Through this activity, potential problems such as stock vacancies, expired drugs, and recording inconsistencies can be immediately identified and corrected. The absence of documentation of monitoring results can reduce the evaluation function as a basis for decision-making and improvement planning.

Research by Andriani et al. (2026) explains that monitoring and evaluation that are carried out regularly and well documented can improve the efficiency of logistics management and support the sustainability of pharmaceutical services[19].

CONCLUSION

Based on the results of the research, the implementation of drug logistics management at the Niko Pharmacy on Jalan Besar Tanjung Anom, Sembahe Baru Village, Pancur Batu District, Deli Serdang Regency has generally gone well at all stages, namely planning, budgeting, procurement, storage, distribution, elimination and destruction, recording and reporting, as well as monitoring and evaluation. Planning for drug needs has been carried out based on sales data, prescriptions, and patient needs by applying minimum stock, maximum stock, and safety stock. Drug procurement is carried out through Pharmaceutical Wholesalers (PBF) as needed, storage has implemented the FEFO system, and drug distribution is carried out appropriately and accompanied by stock recording. However, this study still found several obstacles, namely budget limitations,

delays in drug delivery from distributors, recording that is still done manually, the unavailability of documentation of drug destruction activities at the pharmacy level, and the absence of written documentation of monitoring and evaluation results.

SUGGESTION

Based on these findings, it is recommended that Apotik Niko improve the administration and documentation system for drug logistics management, especially in destruction activities as well as monitoring and evaluation, so that the entire process can be well documented and support the accountability of drug management. In addition, pharmacies need to consider the use of computer-based recording systems to improve the accuracy and efficiency of drug stock management, as well as strengthen budget planning and coordination with distributors to minimize the risk of procurement delays. With these improvements, it is hoped that the quality of pharmaceutical services and drug logistics management at Niko Pharmacy can be more optimal, effective, and sustainable.

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