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Analysis of a Drug Logistics Sop Model to Ensure Drug Availability (Qualitative Study: at the Pharmacy Installation of Ayamaru Public Health Center Southwest Papua)

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ABSTRACT

The availability of medicines in health facilities is a key indicator of effective and quality health services. However, in many Community Health Centers (Puskesmas), including Ayamaru Puskesmas in Southwest Papua, drug stock instability often occurs due to weak operational procedures (SOP) for drug logistics. This study aims to analyze the implementation of the drug logistics SOP model in ensuring drug availability at the Ayamaru Community Health Center Pharmacy Installation through a qualitative approach. The research method used was a qualitative case study, with data collection techniques including in-depth interviews with pharmacy staff, direct observation of the logistics management process, and documentation of related documents such as stock records, drug requests, and distribution. Data analysis was conducted thematically based on aspects of the logistics SOP, including planning, receiving, storing, distributing, and recording drugs. The results showed that although the drug logistics SOP was in place, its implementation still faced obstacles such as limited human resources, delayed distribution from the district health office, and a lack of training and routine supervision. Furthermore, the recording and reporting system was largely manual, making it prone to errors and information delays. Therefore, strengthening the capacity of pharmacy staff, optimizing the logistics information system, and institutional commitment to consistently implementing the SOP are necessary. Therefore, understanding and improving the drug logistics SOP model can be key to ensuring sustainable drug availability at the Ayamaru Community Health Center, supporting equitable and quality access to healthcare services for the local community.

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INTRODUCTION

Drug availability is a crucial aspect of implementing a sustainable healthcare system in Indonesia, as inefficient drug management can lead to stock shortages, drug shortages, excessive stockpiling, and increased drug costs, as explained by Ayu et al., 2025. Appropriate drug planning and management are essential for determining the types and quantities of drugs and consumable medical supplies (BMHP) needed to ensure effective healthcare

service needs are met, drug quality is assured, and drugs are readily accessible when needed. The type and quantity of drugs are typically determined by the predominant disease and the most frequently performed services. Prior to drug procurement, Community Health Centers (Puskesmas) prepare a Drug Request and Use Sheet (LPLPO) which is submitted to the Health Office to obtain the necessary drugs, with priority given to the most frequently used drugs (Jumriah et al., 2023).

Ayamaru Community Health Center, as a primary healthcare facility in Maybrat Regency, Southwest Papua Province, has the primary responsibility for restoring public health through medical services. The drug availability at this Community Health Center is generally good enough to support community medical services. However, some drugs are still available below 50% of the standard SOP for drug needs. The SOP for drug logistics serves as the primary guideline for supply chain management, from demand planning and procurement, distribution, storage, stock recording, and distribution to patients. Although implemented in accordance with health office regulations, field practice often faces obstacles, such as stock discrepancies between administrative records and actual conditions, delays in distribution from provincial warehouses, minimal coordination between agencies, and limited human resource capacity in drug logistics management. This phenomenon leads to shortages of some drugs and the accumulation of others that are not optimally utilized.

Several previous studies, such as Carissa et al. (2025), examined drug logistics management but failed to explore the impact of SOPs on healthcare worker behavior in the field or evaluate their resilience during surges in demand. Research by Tasrim et al. (2024), focused more on institutional aspects without considering public participation or service gaps in 3T (Remote, Outermost, and Disadvantaged) areas. Therefore, this study aims to analyze the implementation of the drug logistics SOP at the Ayamaru Community Health Center, identify obstacles, and formulate strategies to optimize drug distribution in remote areas. This research is relevant because effective drug planning and availability will improve the operational efficiency of the community health center and ensure patient safety. Furthermore, the results are expected to provide practical recommendations for community health center management in optimizing drug management and BMHP, as well as provide a clear picture of the effectiveness of the drug logistics SOP, weaknesses, and potential improvements. The findings will serve as the basis for designing a drug logistics SOP model that is more adaptive and responsive to the geographic and infrastructure conditions of remote areas, thereby sustainably increasing drug availability and maintaining the quality of public health services in Ayamaru and other similar areas.

Based on the above background, this study aims to: (1) Analyze the drug selection process at the health facility, which refers to the national essential drug list and applicable clinical guidelines in accordance with the Standard Operating Procedure (SOP) for drug logistics at the Ayamaru Community Health Center Pharmacy Unit. (2) Analyze the effectiveness of the drug procurement process in meeting drug needs in a timely manner, in the correct quantity, and at an efficient cost. (3) Analyze the drug distribution system at

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Ayamaru Community Health Center. (4) Analyze drug use patterns in health facilities, including aspects of prescription, dispensing, and patient compliance.

METHOD

This study uses a qualitative approach with a case study method to gain an in-depth understanding of the implementation of Standard Operating Procedures (SOPs) for drug logistics at the Pharmacy Installation of the Ayamaru Community Health Center, Maybrat Regency, Southwest Papua Province. According to Sugiyono, qualitative methods emphasize exploring and understanding phenomena in depth through non-numerical data, including words, texts, interviews, and observations. The research strategy involves a literature review to obtain relevant information, as explained by Widjaja et al., who emphasize literature analysis as a process for solving research problems. This approach was chosen because the study wants to explore the dynamics of SOP implementation from the perspective of actors, including experiences, perceptions, and operational constraints that are not always visible from quantitative data, with a focus on procurement, distribution, storage, stock recording, and distribution of drugs to the community. The study was conducted at the Ayamaru Community Health Center Pharmacy Unit for one month in May 2025.

The study population comprised all parties involved in drug logistics management, including the head of the community health center, the head of the pharmacy unit, drug warehouse staff, pharmacy staff, and related agencies such as the Maybrat District Health Office and the provincial or central pharmaceutical warehouse. Sugiyono stated that the population is a generalized area with certain qualities and characteristics. The sample was determined purposively, considering their strategic roles and direct knowledge of SOPs. These included the head of the community health center as the decision-maker and operational coordinator, the head of the pharmacy unit as the person responsible for drug management, and the physicians who handle the daily drug flow. Data collection was conducted through in-depth interviews, direct observation, and archival documentation such as SOPs, monthly stock reports, and drug distribution records. Data were analyzed qualitatively using a thematic approach to provide a comprehensive description of the SOP and recommendations for improvement to ensure drug availability.

The study variables included the drug logistics SOP model as the primary variable analyzed, encompassing the flow of drug procurement, distribution, storage, stock recording, and distribution. Factors influencing the effectiveness of SOPs include infrastructure conditions, regional accessibility, human resource capacity, inter-agency coordination, and logistics information systems. The variable of drug availability represents the expected end result, namely the availability of drugs in a timely manner, in quantity, and of the right type at the Ayamaru Community Health Center Pharmacy Unit. Information collection techniques combined in-depth interviews, direct observation, and documentation to obtain comprehensive and valid data. Semi-structured interviews emphasized the perspectives, experiences, and dynamics of SOP implementation, while observations helped understand the actual workflow and situational context not always implicit in the interviews. SOP archival

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documentation and distribution reports served as data triangulation to ensure validity and reliability.

Data triangulation was applied as a validation strategy, including source triangulation by comparing interviews with various informants, and technical triangulation by matching interview data, literature studies, observations, and documents. Purwadhi et al. emphasized that data validation is essential to ensure consistency between the conditions of the research object and the researcher's report. Data analysis employed the Miles and Huberman approach, which encompasses data reduction, data presentation, and conclusion drawing in an interactive and continuous manner. Data reduction involves problem selection, coding, theme exploration, and field memo recording. Data presentation involves comparing interview results with field findings, which can be visualized in matrices, graphs, or charts. Conclusions are drawn by identifying patterns, regularities, causal relationships, and propositions based on field notes, coding, and retrieval methods, resulting in detailed and scientifically sound conclusions.

RESULTS AND DISCCUSION

Sample Characteristics

Table 1. Informant Characteristics Based on Gender, Age, Education Level, and Length of Service

No	Informant	Gender	Age	Position	Length of
1	Informant	Female	(years)	Head of Ayamaru	5 years
2	1	Female	45	Community Health Center Maybrat Regency,	2 years
3	Informant	Male	Years	General Practitioner	2 years

Interview Results

Interview results are a written summary of the information, findings, and data obtained from the informants through a question-and-answer process following the interview. This report serves to document the informants' perspectives, experiences, and opinions, thus serving as a basis for further analysis, decision-making, or research reports. Interviews were conducted in-depth with open-ended questions to elicit information regarding the implementation of the drug logistics standard operating procedure (SOP) according to the drug management cycle, which includes four stages: Selection, Procurement, Distribution, and Use.

Selection

Drug selection is the initial and crucial stage in the drug logistics chain in healthcare facilities, including the Ayamaru Community Health Center, Maybrat Regency, Southwest Papua. This process determines the types of drugs to be used based on medical necessity, effectiveness, safety, quality, and economic considerations to ensure that drugs are available according to patient needs, affordable, and used rationally. In the drug logistics standard operating procedure (SOP), selection serves as the basis for the entire drug management

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process, from planning, procurement, storage, distribution, and monitoring their use. At the Ayamaru Community Health Center, drug selection refers to the National Formulary (Formnas) and the Community Health Center Formulary (Formukes), adjusted to the dominant disease patterns in the region, such as malaria, acute respiratory infections, hypertension, and diabetes, and based on monthly morbidity data. The Head of the Community Health Center, the pharmacy coordinator, and general practitioners emphasize that drug selection always follows the National Essential Drug List (DOEN) and the Ministry of Health's therapeutic guidelines. Therefore, drug procurement and distribution at the Community Health Center are structured in accordance with the Standard Operating Procedures (SOPs) for drug logistics and ministry regulations. These aim to ensure drug availability, prevent budget wastage, ensure drug quality and safety, and align clinical practice with national guidelines.

The selection of drugs in the Ayamaru Community Health Center formulary is a collaborative process involving doctors, pharmacy coordinators, nurses, midwives, and other medical personnel, and is not a unilateral decision by pharmacists. However, implementation in the field faces obstacles such as limited human resources, geographical distance, and delays in coordination. Therefore, strengthening adaptive and participatory SOPs is essential to ensure the availability of appropriate and sustainable drugs. In selecting drugs, key criteria include scientific evidence, compliance with the National Formulary and Clinical Practice Guidelines, local disease patterns, safety, effectiveness, and budget availability. Drug selection is carried out systematically and strategically through a drug logistics Standard Operating Procedure (SOP), integrating technical and strategic considerations to ensure optimal drug availability.

If a drug request falls outside the Community Health Center (Puskesmas) formulary, pharmacists do not immediately reject the request but instead make independent purchases using National Health Insurance (JKN) funds. This process is still ad hoc and not yet documented in a formal SOP, emphasizing the need for an adaptive SOP that takes into account the geographic and social context in Southwest Papua. Drug selection is conducted prior to the preparation of the Drug Procurement Plan (RPO), approximately 3–4 months before the procurement period, involving a pharmacy team consisting of pharmacists, pharmaceutical technicians, and logistics coordinators. This process considers the disease burden over the past six months, drug effectiveness and safety, budget availability from the Regional Operational Assistance (BOK) and Regional Public Service Agency (BLUD) funds, and ease of distribution and storage, for example, prioritizing drugs that do not require a cold chain.

Although the drug logistics SOP provides a written framework that helps maintain consistency and accountability, its implementation still faces challenges, such as SOPs that do not fully accommodate changing seasonal disease patterns, limited involvement of doctors and midwives in selection meetings, and the absence of a digital pharmacy management information system, which still requires manual selection. Other challenges include delays in morbidity data, rapid changes in central policy, and minimal training for pharmacists. Overall, drug selection at the Ayamaru Community Health Center has been implemented based on

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national guidelines and local data, but still requires strengthening of information systems, human resource capacity, and cross-sector integration. Drug selection based on morbidity data and rational principles plays a significant role in maintaining drug availability, but requires more dynamic adaptation to local geographic and epidemiological conditions.

Procurement (Availability)

Drug procurement at the Ayamaru Community Health Center is a crucial part of the pharmaceutical logistics chain, which aims to ensure the availability of sufficient quantities of high-quality drugs and consumable medical supplies (BMHP) at a reasonable cost to support optimal healthcare services. The procurement process begins with planning drug needs based on previous month's consumption data, submitting requests to the Maybrat District Health Office, receiving, storing according to category, and distributing them to service units. The drug logistics standard operating procedure (SOP) serves as the primary reference in this process, regulating quantification of needs, supplier selection, quality assurance, and contract compliance. Although SOPs exist, their implementation faces various challenges that impact the effectiveness of drug procurement and availability.

One major issue is the mismatch between patient clinical needs and the available drug list. This is caused by misalignment between national or local formularies and actual morbidity patterns, prescribing errors, patient non-compliance, distribution delays, and inaccurate procurement planning. As a result, stockouts of essential generic drugs frequently occur, while rarely used medications accumulate. Lack of coordination between healthcare workers and pharmacists exacerbates the situation, as doctors prescribe medications without considering stock availability, and pharmacists do not always provide alternative information. The impacts of this discrepancy include disrupted continuity of patient therapy, the risk of disease exacerbations, and reduced public trust in healthcare facilities. Addressing this issue requires medication reconciliation, formulary updates based on local morbidity data, a pharmaceutical management information system, collaborative interprofessional training, and the implementation of rational drug use principles, including real-time stock monitoring.

The effectiveness of drug procurement at the Ayamaru Community Health Center is also affected by geographical constraints, transportation infrastructure, human resources, and budget. The procurement process from the district warehouse to the community health center can take 2–6 weeks, even longer during the rainy season or when road conditions are poor. Reliance on central distribution often hinders accuracy in procurement quantities, timing, and costs. Existing standard operating procedures (SOPs) are not fully adapted to local dynamics, and the pharmaceutical management information system is not yet integrated, resulting in manual stock monitoring. The limited number of pharmacists must manage the entire logistics process while simultaneously serving patients, often neglecting routine monitoring.

In addition, drug procurement faces other obstacles such as delivery delays, drug shortages, and non-compliance with drug specifications. The main causes of delays include difficult geographic access, extreme weather, lengthy administrative processes, and limited distribution fleet capacity. Drug procurement planning is also inaccurate due to fluctuations

in the number of patient visits, particularly during the rainy season. As a result, some drugs run out quickly, while others accumulate, demonstrating weak data integration between community health centers (Puskesmas) and the health office. Current SOPs (SOPs) do not accommodate feedback loop mechanisms to dynamically adjust drug allocation.

In response, the Ayamaru Community Health Center (Puskesmas) developed local initiatives, such as compiling a priority list of essential drugs, daily recording of critical drug stocks, and informal coordination with neighboring community health centers for emergency drug borrowing and lending. Overall, drug procurement at the Ayamaru Community Health Center still faces significant challenges, including mismatches between needs and stocks, distribution delays, limited human resources, and infrastructure constraints. Improving effectiveness requires a revised, more adaptive SOP, strengthening the pharmaceutical management information system, training human resources, and local government support to improve the distribution chain to ensure sustainable drug availability.

Distribution

Drug distribution at the Ayamaru Community Health Center is a crucial part of the pharmaceutical logistics chain, ensuring the availability of drugs of the appropriate quality, quantity, type, and time to support healthcare services. The distribution process begins with the receipt of drugs at the district pharmacy warehouse, followed by recording in the receipt book and stock card, storage, and distribution to healthcare units. The drug logistics Standard Operating Procedure (SOP) serves as the primary guideline to ensure the distribution process runs smoothly, safely, and orderly in accordance with the principles of Good Drug Distribution Practices (CDOB) and applicable regulations.

Interviews revealed that although the distribution system at the Ayamaru Community Health Center formally adheres to the SOP established by the Ministry of Health and the Maybrat District Health Office, its implementation faces various obstacles. The main obstacle stems from delays in drug deliveries from the district, which often last one to two months, resulting in depleted or depleted drug stocks at the community health center. These delays are caused by difficult geographic conditions, limited transportation access, bad weather, road damage, and limited sea and land transportation. The distribution system implemented is a push system, meaning drugs are sent from districts to community health centers without detailed requests from the community health centers. Consequently, drug allocation often does not align with the local disease burden. For example, drugs for hypertension and diabetes are shipped in large quantities, while drugs for acute respiratory infections and malaria, which are more prevalent, are often in short supply.

Drug distribution at the Ayamaru Community Health Center tends to be safe because drugs are packaged with shipping documents and packing lists, and are physically inspected upon arrival. However, the recording system is still not fully systematic; Delivery Notes and Handover Reports are often incomplete or missing, complicating audits and evaluations. Reporting of drug stock and requests is still manual, without integration with health logistics information systems such as SIMLITBANG or e-logistics, making the process slow and error-prone.

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Overall, drug distribution at the Ayamaru Community Health Center remains fragile due to reliance on the push system, limited transportation access, remote geographic location, and minimal information system integration. Delays in distribution lead to stock fluctuations and potential drug shortages, while allocations that are not based on actual needs create inequities in availability. Lack of physical protection during transportation has the potential to degrade drug quality, and unsystematic record-keeping hinders transparency and accountability in the distribution chain. To strengthen distribution, holistic logistics system improvements, human resource capacity building, cross-sector coordination, and information technology integration are needed to ensure equitable, timely, and sustainable drug distribution.

Use

The drug use aspect of the drug logistics SOP at Ayamaru Community Health Center is the final stage of the drug management cycle, involving both patient use and the reordering process from the healthcare unit to the pharmacy to meet drug needs. This stage is crucial because it determines the effectiveness of healthcare services and the realization of the ultimate goal of the drug logistics system: meeting patient needs safely, rationally, and sustainably. The drug SOP serves as a written guideline that governs the entire process of administering drugs in a standardized, safe, and effective manner, including instructions for drug use by healthcare workers and patients.

The drug use pattern at Ayamaru Community Health Center encompasses prescriptions, dispensing, and patient compliance, but challenges persist. Doctors and healthcare workers generally prescribe drugs according to the national formulary and clinical guidelines, but discrepancies often occur between prescriptions and the availability of drug stocks in the pharmacy warehouse. This is caused by delays in reporting drug needs, the lack of an electronic integration system between medical records and drug logistics, resulting in manual recapitulation of needs, and fluctuations in patient visits, especially during the rainy season. As a result, patients sometimes have to wait or go home because prescribed drugs are unavailable. Drug logistics standard operating procedures (SOPs) have become a crucial foundation, but geographical challenges, limited human resources, and manual systems have prevented their implementation.

In terms of rational medication, drug planning is conducted monthly based on previous usage data and seasonal disease reports. However, patient fluctuations and delays in distribution from districts lead to underuse of essential drugs such as antibiotics or antidiabetics, while spikes in cases of certain diseases can lead to temporary drug shortages. Efforts to prevent medication errors are implemented through strict standard operating procedures (SOPs), double-checking procedures, clear labeling, healthcare worker training, incident reporting systems, and interprofessional communication. This aims to minimize errors during medication preparation and administration, especially for high-risk medications, but limited human resources and technology remain obstacles.

Monitoring of drug use through prescription audits and side effect surveillance is not routine and structured. Existing prescription checks are limited to administrative

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completeness without evaluating rationality or potential medication errors. The absence of a formal monitoring system increases the risk of overprescribing, underuse, or inappropriate use of medications. Adverse drug effects are handled manually through registers and reporting forms, with internal evaluation and drug replacement if necessary. However, limited replacement stocks and manual systems limit rapid response to clinical incidents.

Overall, the Use aspect at the Ayamaru Community Health Center has been implemented but is not yet optimal. Inhibiting factors include high workload, limited time for patient education, a lack of a clinical monitoring system, and local cultural influences. While medication availability is relatively well maintained thanks to logistics SOPs, the effectiveness of medication use is not fully guaranteed, which can impact the quality of healthcare services. Improvements are needed through strengthening patient education, integrating compliance monitoring into record-keeping, training healthcare workers on effective communication and medication management, and adapting SOPs to take into account the local socio-cultural context. With a systemic, data-driven approach, medication use can be more rational, safe, and responsive to the needs of communities in remote areas like Ayamaru.

Observation Results

Table 2. Observation Results

No.	Observed Activities	Field Findings	Compliance with SOP
1	Physical checking of medications (packaging, expiration date, quantity) upon arrival from the Health Office	Medications are received by pharmacists and visually inspected. They are not always recorded directly in the receipt book.	Partially compliant
2	Recording of incoming medications	A manual logistics book (drug stock book) is used; there is no digital system yet.	Not fully compliant
3	Grouping medications by category (antibiotics, analgesics, vitamins, etc.)	Medications are grouped, but not alphabetically or according to Ministry of Health regulations.	Partially compliant
4	Storing medications based on temperature	Medications that do not require refrigeration (cold chain) are stored on open shelves; there is no dedicated vaccine refrigerator.	Not compliant
5	FIFO/FEFO (First In First Out / First Expired First Out) system	Medications are dispensed without considering expiration dates.	Not compliant
6	Medication delivery to service areas (GENERAL, DENTAL, MCH, etc.)	Medications are dispensed based on daily requests, but there is no official request form.	Partially compliant

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No.	Observed Activities	Field Findings	Compliance with SOP
7	Medication distribution to integrated health posts (Posyandu)	This is done monthly, but is often delayed due to transportation constraints.	Not compliant
8	Daily medication stock recording	This is done manually, and is often completed late.	Not compliant
9	Medication stock reporting to the Health Office	Monthly reports are sent via email or brought directly to the district office.	Partially compliant
10	Weekly medication stock checks	This is done informally by the head of pharmacy.	Not compliant
11	Handling of expired medications	Expired medications are collected, but there is no official disposal procedure.	Not compliant
12	Availability of basic essential medications (paracetamol, CTM, amoxicillin, etc.)	80% of essential medications are available, 20% are often out of stock (hypertension and diabetes medications).	Partially compliant

Source: Processed Data (2025)

Research Discussion

Selection

Drug selection is the initial step in the drug logistics chain, determining the types of drugs to be used in healthcare facilities. At the Ayamaru Community Health Center (Puskes), the drug selection process is based on the National Formulary (Formnas) and the Community Health Center Formulary (Formukes) issued by the Indonesian Ministry of Health. Pharmacy staff stated that the drug list available at the Ayamaru Community Health Center fully adheres to the Formukes, which is tailored to the dominant disease patterns in the Puskes center's coverage area.

Drug selection at the Ayamaru Community Health Center follows national guidelines, but remains limited to essential drugs with no room for more responsive local adaptation. The inability to tailor the selection to the specific needs of the community can threaten the availability of drugs for patients with specific medical conditions. A coordination mechanism is needed between the community health center, the district health office, and referral hospitals to allow for adjustments in drug selection under specific circumstances.

Procurement

The drug procurement process at the Ayamaru Community Health Center is carried out through two main channels: procurement from the Maybrat District Health Office and Health Operational Assistance (BOK) funds, which are managed independently by the health center. Most essential drugs, such as malaria, TB, and immunization medications, are supplied by the Health Office, while medications for common illnesses (ARI, diarrhea, hypertension) are obtained through local procurement using the National Health Insurance (JKN) funds.

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However, respondents cited uncertainty regarding delivery times from the Health Office, which sometimes results in drug stocks running out before new shipments arrive. Furthermore, the limited JKN budget prevents the health center from procuring a complete range of drugs to meet actual needs. The local procurement process is also hampered by lengthy administrative procedures and limited human resources familiar with procurement procedures according to state financial regulations.

The dual procurement system (central and local) provides flexibility, but it creates complexity and a high dependence on funding availability and bureaucratic efficiency. The uncertainty of supply from the Health Office indicates weak coordination in planning and distribution at the district level. Improvements to the logistics information system and strengthening local procurement management capacity are urgently needed to ensure continuous drug availability.

Distribution

Drug distribution from the Health Office to the Ayamaru Community Health Center is carried out periodically, but with inconsistent frequency. Based on observational data, distribution schedules should be quarterly, but in practice, they are often delayed by 1–2 months. The main factors for delays are geographic and transportation constraints, as the Ayamaru Community Health Center is located in a remote area with difficult land access, especially during the rainy season. Within the community health center, drug distribution from the warehouse to the service area is carried out manually by pharmacists. The stock recording system still uses a logistics book. Although the Community Health Center Health Information System (SIKC) format is available, it has not been optimally utilized due to limited internet connection and training.

Physical and informational distribution constraints are the main obstacles to drug availability. Delays in distribution from the district level often cause drug stocks at the community health center to run low or run out. The manual internal distribution system increases the risk of recording errors and inaccurate stock data. Logistics innovations are needed, such as the use of alternative transportation (e.g., small planes or boats) and strengthening the digital-based logistics information system that can be accessed offline.

Use

Medication use at the Ayamaru Community Health Center adheres to the principle of rationality, as prescribed by a doctor or trained nurse. Pharmacists stated that they always verify prescriptions before dispensing medication to patients. Furthermore, brief patient education is provided regarding medication administration, side effects, and the importance of completing the course of treatment.

However, several challenges have been identified in medication use, including:

a. Low patient compliance, especially for long-term medications such as hypertension and diabetes.
b. Social stigma surrounding certain diseases (such as tuberculosis) makes patients reluctant to take their medications regularly.

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c. Limited time and human resources mean that medication education is not always conducted intensively.

Although the technical aspects of medication use are regulated in the SOP, social factors and patient behavior pose significant challenges in ensuring the effectiveness of therapy. Non-technical interventions such as health cadres, cultural approaches, and patient support programs need to be strengthened. Furthermore, integration between pharmaceutical services and public health programs (such as Posyandu and Prolanis) can improve medication adherence.

CONCLUSION

Based on the results of a qualitative study analyzing the drug logistics SOP model at the Ayamaru Community Health Center Pharmacy Unit in Maybrat Regency, Southwest Papua, it can be concluded that the drug logistics SOP plays a crucial role in maintaining the continuity of drug availability for the community. Although its implementation still faces various structural, technical, and human resource challenges. In general, the drug logistics SOP covers key stages, from drug requirement planning and procurement, receipt, storage, distribution, to recording and reporting. However, its implementation in the field has been inconsistent, as evidenced by the ongoing stock shortages of several essential drugs, particularly for infectious diseases such as malaria, tuberculosis, and hypertension. Several factors influence the effectiveness of the SOP, including limited transportation and communication infrastructure that complicate drug distribution from the district to the community health center; a limited number of competent pharmacists; a semi-manual recording system prone to errors and late reporting; and a heavy reliance on frequently late drug deliveries from the District Health Office. Despite the availability of SOPs, routine training and supervision of pharmacists remain very limited, resulting in varying interpretations and implementation of the SOPs among staff, compromising the consistency and accuracy of drug logistics management.

Furthermore, drug demand planning based on historical consumption data is not supported by an integrated drug logistics information system, limiting the accuracy of planning and real-time stock monitoring. This results in an imbalance between drug demand and availability. Although SOPs theoretically support drug availability, their implementation is suboptimal due to external and internal constraints. SOPs help pharmacists systematically manage drugs, support stock data transparency, and reduce the risk of administrative errors. However, limited human resources, delays in distribution from the provinces, and inadequate IT infrastructure are major obstacles.

The commitment and discipline of staff in implementing SOPs are crucial for the success of the drug logistics system. Without routine supervision or periodic evaluation, SOP implementation tends to be lax, potentially leading to stockouts or expired stock. Therefore, drug logistics SOPs are a crucial foundation for maintaining drug availability, but their effectiveness depends heavily on management support, human resource capacity, a smooth supply chain, and an ongoing monitoring system. To improve drug logistics performance at

the Ayamaru Community Health Center, strengthening SOP implementation through regular training, the implementation of a simple pharmaceutical information system, and better coordination between relevant parties is necessary.

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