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Evaluation of Essential Medicine Availability to Support Integrated Primary Health Care in Batang Hari District Primary Health Centers

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Abstract
Introduction: *Adequate availability of essential medicines is a critical component in ensuring the continuity of Integrated Primary Health Care (IPC) services.* ***Objective:*** *This study aimed to evaluate the availability of essential medicines in supporting IPC implementation at Primary Health Centers in Batang Hari Regency.* ***Methods****: A qualitative descriptive study was conducted using in-depth interviews, observations, and document reviews. Informants were selected through purposive sampling, comprising heads of primary health centers, drug managers, IPC coordinators, and District Health Office representatives. Data were analyzed thematically using an input–process–output evaluation framework.* ***Results and Discussion:*** *Of 40 essential medicine types observed, 16 (40%) were sufficiently available across all health centers, 13 (32.5%) were available but limited in several facilities, 7 (17.5%) experienced stock-outs in some health centers, and 4 (10%) were entirely unavailable across all studied facilities. Stock-outs persisted from several weeks to months, driven by distribution delays, supply-demand mismatches, and inadequate stock monitoring systems, resulting in increased patient referrals and out-of-pocket medicine purchases.* ***Conclusions:*** *The availability of essential medicines has not yet fully supported optimal IPC implementation. Strengthening demand planning, improving logistics distribution timeliness, and enhancing coordination between primary health centers and the district health office are essential to ensure sustainable medicine availability in support of comprehensive primary health services*

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Introduction

The Government of Indonesia through the Ministry of Health is carrying out a transformation of the health system consisting of six main pillars, one of which is the transformation of primary services. This transformation emphasizes strengthening promotive and preventive efforts with the support of innovation and the use of health technology. This approach is in line with the World Health Organization's recommendations that emphasize strengthening Primary Health Care (PHC) through the integration of individual and community health services, community empowerment, and cross-sectoral health policies (WHO, 2022). An individual-centered approach to health services is expected to be able to produce more comprehensive, responsive, and sustainable services according to the needs of the community (Ministry of Health of the Republic of Indonesia, 2023).

As part of this transformation, the government developed an Integrated Primary Care (IPC) policy that aims to integrate various health programs at Community Health Centers into comprehensive services based on the life cycle (Ministry of Health of the Republic of Indonesia, 2023). The implementation of IPC has been implemented in 4,870 out of 10,268 Community Health Centers in Indonesia (47.42%), which shows that almost half of the first-level health care facilities have started to implement integrated health services in line with the direction of the transformation of the national health system (Ministry of Health of the Republic of Indonesia, 2025). In its implementation, the Community Health Center is expected to be able to provide integrated health services including promotive, preventive, basic curative efforts, and control of infectious and non-communicable diseases (Raiyanti, Dwiastuti, Artawa, Kencana, & Supariani, 2022).

The success of the implementation of IPC is greatly influenced by the readiness of various components of the health system, one of which is the availability of essential drugs. Essential drugs are drugs that are selected based on the priority needs of the community by considering effectiveness, safety, and cost efficiency (Ministry of Health of the Republic of Indonesia, 2023). The availability of essential medicines in first-level health care facilities is an important factor in ensuring the continuity of health services and supporting the treatment of acute and chronic diseases in the community (World Health Organization, 2021). However, in the implementation of the availability of essential medicines at Community Health Centers, there are still various obstacles such as delays in procurement, uneven distribution of drugs, and mismatches between the need and supply of medicines (Lestari & Rachmawati, 2021). This condition can cause drug vacancies that have an impact on the quality of health services, increased patient referrals, and decreased levels of community satisfaction with Community Health Center services (Availability et al., 2023),(Nugroho, 2021).

Data from the Batang Hari Regency Health Office shows that there are still vacancies in several types of essential drugs in a number of Community Health Centers at certain times, including phytomenadione (injectable vitamin K), methylergomethrin maleate, and vitamin B6 (Batanghari Regency Health Office, 2024). The shortage of these medicines has the potential to hinder health services, especially in maternal and child health services and reflects the lack of optimal drug logistics management system in the era of the implementation of Integrated Primary Care (Hadi, Noerjoedianto, Amir, Guspianto, & Solida, 2025).

Although studies have identified common challenges of essential drug availability in primary health care facilities, research that specifically evaluates the availability of essential drugs in the context of IPC implementation—particularly in districts with

diverse geographical characteristics and logistical capacity—is still very limited. Most of the existing research has not directly linked the condition of drug availability to the stages and readiness of IPC implementation at the Community Health Center level. As a result, there is no comprehensive picture of the extent to which the current drug management system is able to support the demands of integrated services based on the life cycle that is at the core of the IPC policy. Based on these conditions, an evaluation of the availability of essential drugs at the Community Health Center is needed to find out the extent to which the drug management system is able to support the implementation of Integrated Primary Care. Therefore, this study aims to evaluate the availability of essential drugs in supporting the implementation of Integrated Primary Care in the Community Health Center of Batang Hari Regency.

Method

This study uses a qualitative approach with a descriptive design to explore the availability of essential drugs in supporting the implementation of Integrated Primary Care (IPC) at the Community Health Center of Batang Hari Regency. This approach is used to gain an in-depth understanding of the experiences, perceptions, and constraints faced by stakeholders in the management of essential medicines at the primary health service level. The research was carried out in Batang Hari Regency, Jambi Province from November 2025 to January 2026.

The research informants were selected using *purposive sampling techniques* consisting of the head of the Community Health Center, drug manager, person in charge of the IPC program at the Community Health Center, and pharmacy manager at the Batang Hari Regency Health Office. Data collection was carried out through in-depth interviews, document observations, and field notes that focused on the input, process, and output components in the essential drug management system as a framework for research evaluation.

The data was analyzed qualitatively using the Miles and Huberman model which included data reduction, data presentation, and conclusion drawing and verification. The validity of the data is maintained through triangulation of sources and methods by comparing the results of interviews and related documents. This research has obtained ethical approval from the Health Polytechnic of the Ministry of Health of the Republic of Indonesia Jambi with the number LB.02.06/2/1991/2025.50.

Result and Discussion

Characteristics of Research Informants

The informants in this study amounted to 17 people consisting of 2 representatives of the Health Office and 15 informants from five Community Health Centers, each consisting of the head of the Community Health Center, the person in charge of medicine, and the person in charge of the Integrated Primary Care (IPC) program. Informants were selected based on direct involvement in the management of essential medicines and the implementation of the IPC program. Most of the informants have between 2 to 5 years of work experience with diverse educational backgrounds, including doctors, pharmacists, pharmacists, bachelor of public health (SKM), diploma in midwifery, and diploma in nursing, among others. The variety of positions, work experience, and educational backgrounds provide a comprehensive overview of the management of essential drugs and the implementation of IPC at the Community Health Center of Batang Hari Regency.

Essential Drug Management Inputs in Supporting IPC

The input component is a basic factor that affects the success of the drug management system in health care facilities. In the context of the implementation of Integrated Primary Care (IPC), the availability of human resources, funding support, and infrastructure are important elements in ensuring the sustainability of the drug logistics system at the Community Health Center. The results of the study show that most of the Community Health Centers in Batang Hari Regency have competent pharmaceutical personnel, but the number is still limited. Some Community Health Centers only have one pharmacist who must handle clinical pharmacy services as well as drug logistics management. This condition causes a high workload of pharmaceutical personnel, especially in carrying out prescription service functions, drug warehouse management, and drug logistics reporting through various health information systems. The limited number of pharmaceutical personnel was also found in various previous studies that showed that the shortage of pharmaceutical personnel is one of the factors that affect the quality of pharmaceutical services in first-level health care facilities (Fil'ilah, Asyim, & Firmaniar, 2023). Other research has also shown that the availability of pharmacists has a significant relationship with the quality of pharmaceutical service management in healthcare facilities (Arimbawa, Pradipta, Dwicandra, & Bawa, 2021).

The Community Health Center carries out an adaptive strategy by involving other health workers such as nurses or midwives to assist pharmaceutical services. Although this strategy can help maintain the continuity of services to patients, the involvement of non-pharmaceutical personnel in pharmaceutical services has the potential to pose a risk of errors in drug management if it is not accompanied by adequate supervision and training. Previous research has shown that the involvement of non-pharmaceutical personnel in pharmaceutical services can increase the risk of drug mismanagement if it is not supported by competencies that meet professional standards (Niederhauser, Zimmermann, Fishman, & Schwappach, 2018). In addition to limited manpower, administrative workload is also a challenge in managing drugs at Community Health Centers, especially due to the use of various health logistics reporting applications that are not fully integrated. The fragmentation of the information system can increase the administrative workload of health workers and reduce the efficiency of health service data management (Gatome-Munyua et al., 2025).

In terms of funding, the drug procurement system at the Community Health Center is supported by two main sources, namely the distribution of drugs from the District Health Office through APBD funding or Special Allocation Funds (DAK), and independent procurement through the Regional Public Service Agency (BLUD) scheme. The BLUD mechanism provides flexibility for Community Health Centers to purchase drugs independently when there is a delay in distribution from local governments. This policy is one of the important strategies in maintaining the availability of drugs at the primary service level and ensuring that health services to the community continue to run optimally (Sulistiyono, Sarnianto, & Anggiani, n.d.), (Sulistyowati & Sunaningsih, 2023).

In addition to the human resources and funding aspects, facilities and infrastructure also play an important role in supporting the drug logistics system at the Community Health Center. The results of the study show that most Community Health Centers already have basic drug storage facilities such as medicine shelves, air conditioning, and temperature monitoring systems. However, some Community Health Centers still face limited pharmaceutical warehouse space and special storage facilities for drugs that

require cold chaining. This limited storage facility has the potential to affect the effectiveness of drug logistics management, especially in maintaining the stability and quality of drugs before being used by patients (Permana, Santosa, & Trigono, 2026).

Overall, the results of the study show that the input component in the management of essential drugs at the Community Health Center of Batang Hari Regency is available, but it still needs strengthening, especially in the aspects of the number of pharmaceutical personnel, the integration of health logistics information systems, and the increase in the capacity of drug storage facilities. Strengthening the input component is an important step to ensure that the drug management system can run optimally in supporting the implementation of Integrated Primary Care (IPC) at the primary health service level.

Essential Medicine Management Process

The process of managing essential drugs is a series of activities that include needs planning, procurement, storage, distribution, and recording and reporting of drugs in health care facilities. The results of the study show that the process of managing essential drugs at the Community Health Center of Batang Hari Regency has generally followed the guidelines for drug management in first-level health care facilities. The planning stage for drug needs is carried out periodically based on previous drug use data, frequent disease patterns, and the number of patient visits. This approach aims to ensure that the type and amount of drugs planned are in accordance with the needs of public health services. Previous research has shown that drug planning based on consumption data and disease patterns can improve the efficiency of pharmaceutical logistics management and minimize the risk of drug vacuums in healthcare facilities (Tomblin Murphy et al., 2022).

At the procurement stage, the Community Health Center obtains drugs through two main mechanisms, namely distribution from the District Health Office and independent procurement through the BLUD system in case of a shortage of drug stock. This mechanism provides flexibility for Community Health Centers in maintaining the continuity of health services to the community. However, in its implementation, there are still several obstacles such as delays in the distribution of drugs from district pharmacy warehouses and limitations of certain types of drugs available. These conditions can affect the smooth running of health services if they are not anticipated through proper planning. Previous research has also shown that the timeliness of drug distribution from the district level to the Community Health Center has a significant effect on the availability of drugs in primary health care facilities (Landa et al., 2025).

At the internal storage and distribution stage, most Community Health Centers have applied pharmaceutical logistics management principles such as the system *First Expired First Out* (FEFO) and *First In First Out* (FIFO) to maintain the quality of the drug and prevent the occurrence of expired drugs. In addition, drug use recording and reporting activities are carried out regularly through the health logistics reporting system used by the Community Health Center. Good recording and reporting play an important role in monitoring drug availability and becoming the basis for planning drug needs in the next period. An integrated recording and reporting system can also improve the accuracy of drug logistics data and support decision-making in drug management in healthcare facilities (Parker et al., 2020).

Overall, the process of managing essential drugs at the Batang Hari Regency Community Health Center has been running in accordance with the principles of pharmaceutical logistics management, although there are still some obstacles, especially related to the accuracy of drug distribution and the limitations of certain types of drugs.

Therefore, it is necessary to strengthen the coordination system between the Community Health Center and the District Health Office so that the drug management process can run more effectively in supporting the implementation of Integrated Primary Care (IPC).

Output: Availability of Essential Drugs in Supporting the Implementation of IPC

The availability of essential drugs is one of the important indicators in ensuring the sustainability of health services in first-level health care facilities. In the context of Integrated Primary Care (IPC), the availability of drugs greatly determines the effectiveness of services because every service program requires adequate drug support for comprehensive disease management. The results of the study show that the level of availability of essential medicines in five Community Health Centers in Batang Hari Regency still varies. An overview of the availability of these essential drugs is presented in Table 1.

Table 1
Availability of Essential Medicines at Community Health Center

No	Community Health Center	Medications Available	Medicine Lacking/ Not Available	Percentage (%)	Categories
1	Community Health Center A	32	8	80.0	Good
2	Community Health Center B	22	18	55.0	Poor
3	Community Health Center C	27	13	67.5	Enough
4	Community Health Center D	28	12	70.0	Enough
5	Community Health Center E	25	15	62.5	Enough

Based on Table 1, the level of availability of essential medicines at the Community Health Center of Batang Hari Regency shows variations between health service facilities. Community Health Center A has the highest drug availability rate with a percentage of 80% and is included in the good category, while Community Health Center B has the lowest availability rate of 55% so it is included in the poor category. Meanwhile, the other three Community Health Centers are in the sufficient category with a percentage of drug availability between 62.5% and 70%. The variation in the availability of these drugs shows that not all Community Health Centers are able to optimally meet the needs of essential drugs in supporting health services to the community. These conditions can have an impact on the smooth running of health services, especially in priority programs that are part of the implementation of IPC.

The availability of essential drugs that are not optimal in several Community Health Centers is influenced by various factors, including the accuracy of planning for drug needs, delays in the distribution of drugs from district pharmacy warehouses, and limitations in the procurement of certain drugs through independent procurement mechanisms. Previous research has shown that inaccurate drug planning and distribution is one of the main factors that cause drug vacancies in first-tier health care facilities (Istiqamah & Mujtahidah, 2025). In addition, the drug logistics system that is not fully integrated can also affect the efficiency of drug management in the Community Health Center, resulting in an impact on the availability of drugs for patients (Istiqamah & Mujtahidah, 2025).

In addition to looking at the general availability of drugs, this study also identified several types of essential drugs that experienced vacancies in the Community Health Center where the research was located. The types of drugs that experience a vacancy and their relationship with the IPC service program are presented in Table 2.

Table 2
Types of Essential Medicines That Have a Void in Support of IPC

No	Drug Name	Empty Community Health Center	Program IPC
1	Primakuin/DHP	1 Community Health Center	Infectious Disease Services (Malaria)
2	Oralit Salt	1 Community Health Center	Infectious Disease (Diarrhea) Services
3	Glibenclamide/Metformin	1 Community Health Center	Non-Communicable Disease Services (Diabetes Mellitus)
4	Vitamin B6 (pyridoxine)	1 Community Health Center	Bacterial Infection Services
5	Albendazole/Pirantel Pamoat	2 Community Health Center	Infectious Disease Services (Worms)
6	Antibiotic Eye Ointment/Eye Drops	2 Community Health Center	Eye Infection Services
7	Epinephrine (Adrenaline)	4 Community Health Center	Emergency Services
8	Amoxicillin syrup	5 Community Health Center	Bacterial Infection Services
9	Amitriptyline tablets	5 Community Health Center	Mental Health/Neurology Services
10	Diazepam	5 Community Health Center	Emergency Services
11	Ketoconazole	5 Community Health Center	Fungal Infection Services

Based on Table 2, several types of essential medicines are still experiencing vacancies in a number of Community Health Centers. The drugs that had the most vacuums were amoxicillin syrup, amitriptyline tablets, diazepam, and ketoconazole which were not available in all Community Health Centers where the study was located. The vacancy of these medicines has the potential to hinder health services, especially in certain programs in IPC such as bacterial infection services, mental health services, and emergency services. The uneven availability of drugs can also affect the quality of health services received by the community, because health workers cannot provide therapy in accordance with service standards if the drugs needed are not available.

Several studies show that the availability of essential drugs that are not optimal in first-level health care facilities is still a problem that is often found in various regions. Factors that affect these conditions include the limitations of the drug distribution system, incompatibility between needs planning and disease patterns, and delays in the drug procurement process (Saputri & Nelwetis, 2025). In addition, the limitations of certain types of drugs in the national procurement system can also affect the availability of drugs at the primary health service level (Muslim & Laksono, 2021). Therefore, strengthening the drug logistics management system, improving coordination between the Community Health Center and the Health Office, and optimizing the drug procurement mechanism through the BLUD system are important steps to ensure the availability of essential drugs in supporting the optimal implementation of Integrated Primary Care (IPC).

Conclusion

The availability of essential medicines at Community Health Centers in Batang Hari Regency has not yet reached an optimal level in supporting the implementation of Integrated Primary Care (IPC), despite the fact that the input and process components of pharmaceutical management have generally been carried out in accordance with pharmaceutical logistics management principles. The variation in availability levels across Community Health Centers — accompanied by stock-outs in the categories of infection, mental health, and emergency medicines — indicates that the system's weaknesses are structural rather than merely operational in nature, with the potential to undermine the continuity of life-cycle-based primary health services that form the cornerstone of IPC policy. The strengthening required extends beyond procurement and distribution mechanisms to encompass improved coordination between Community Health Centers and the District Health Office, as well as the addition of pharmaceutical personnel to alleviate the workload that currently constrains the overall effectiveness of pharmaceutical management.

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