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Evaluation of Drug Management at Selection, Planning, and Procurement Stages with Hanlon Method Improvement Strategy at Aulia General Hospital Blitar

Indah Ana Resti[1], Titik Sunarni[2],Tri Wijayanti[3]
Setia Budi University Surakarta, Indonesia[1,2,3]
E-mail: indahanaresti1@gmail.com

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ABSTRACT

Drug management absorbs up to 50% of hospital operational costs, making it a critical component of hospital efficiency. This study evaluates drug management at selection, planning, and procurement stages at Aulia General Hospital Blitar using national standards and determines improvement priorities using the Hanlon method. A descriptive evaluative design was applied using retrospective document review, interviews, and indicator calculations based on Depkes, SNARS, WHO, and Quick et al. standards. Results showed several indicators below standard: conformity with Fornas (42.98%), available funds for procurement (88.52%), planning conformity with actual use (118%), invoice errors (0.90%), and delayed payments (0.16%). Hanlon analysis revealed that the primary priority problem was insufficient available funds for drug procurement, followed by delayed payments, planning mismatch, invoice errors, and non-conformity with Fornas. The root cause lies in managerial and financial allocation issues rather than technical pharmaceutical procedures. The study concludes that establishing a dedicated pharmaceutical budget and strengthening coordination between doctors and pharmacists are essential strategies for improving drug management efficiency.
Keywords: *Drug management, Selection, Planning, Procurement, Hanlon method*

INTRODUCTION

Drug management is the most critical component of hospital management because it absorbs 40-50% of health service operational costs. This condition places drug management as a prone point for budget leakage as well as a determinant of the quality of pharmaceutical services. Hospitals are required to be able to ensure the availability of drugs that are of the right type, the right quantity, on time, and cost-efficient. Inefficiencies in drug selection, planning, and procurement will have a direct impact on budget waste, drug vacancies, stock accumulation, expiration, and disruption of patient services.

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The drug management cycle according to Quick et al. consists of selection, planning, procurement, distribution, and use. The initial three stages are the main foundation as they determine the cost burden and effectiveness of the next stage. Mistakes at the selection stage will affect the entire planning process. Inaccurate planning will have an impact on inefficient procurement. Meanwhile, weak procurement triggers administrative problems such as invoice errors and late payments that have an impact on the supply of medicines.

Previous studies have shown that hospitals in Indonesia still face classic problems in all three stages. Problems that often arise are the incompatibility of the formulary with Fornas, weak consumption-based planning and epidemiology, and procurement administrative constraints due to late payments. However, most studies only stop at the evaluation stage of indicators without prioritizing objective method-based problems.

This study is different because it not only evaluates the achievement of indicators based on the standards of the Ministry of Health (2008), SNARS (2012), Permenkes (2016), WHO (2011), and Quick et al. (2012), but also uses **the Hanlon Method** to determine problem priorities and improvement strategies in a structured manner. The Hanlon method allows various problems to be compared relatively using the criteria of magnitude, emergency, causability, and PEARL factor so that the most rational priority to be fixed first is obtained.

The problem phenomenon found at Aulia Blitar Hospital shows that although most of the indicators are close to the standard, there are several key indicators that have not met the standard, namely:

- The compatibility of drug items with Fornas is only 42.98% (standard 76%)
- The percentage of funds available for procurement is only 88.52% (100% standard)
- Planning compliance with the use of reality reaches 118% (100% standard)
- Invoice error of 0.90% (0% default)
- Late payment of 0.16% (standard 0%)

This problem shows that the root of the problem does not lie in the lack of a system, but in the managerial aspect, coordination of doctors-pharmacists, and budget management of pharmaceutical installations. The research gap of this study is that there is no research that integrates the evaluation of drug management indicators with the determination of priority problems using Hanlon in regional referral hospitals. The novelty of this research lies in the use of Hanlon to determine the priority scale of drug management improvement based on real hospital indicator data. The purpose of the study was to evaluate the achievement of the standard of the selection, planning, and procurement of drugs at Aulia Blitar Hospital and determine the improvement strategy using the Hanlon method.

METHODS

The study used an evaluative descriptive design on drug management in 2019 at the Pharmacy Installation of Aulia Blitar Hospital. Data was collected

retrospectively through document observation, IFRS head interviews, as well as tracing of planning documents, invoices, stock cards, RKO BPJS, Fornas, and RS Formularies.

Data Collection Techniques

- Formulary documents, Fornas, and list of drug items
- Annual planning and purchasing documents
- Order letter and invoice documents
- List of debt payments to distributors
- In-depth interview with the head of IFRS

Data Analysis

The calculation of each indicator uses a standard formula:

- Selection: (items as per / items available) × 100%
- Fund planning: (funds available/funds needed) × 100%
- Planning suitability: (plan item / use item) × 100%
- Proportion accepted: (product received/planned) × 100%
- Incorrect invoices and late payments are calculated in the percentage of occurrence

Furthermore, the priority of the problem was determined using Hanlon by calculating BPR and OPR based on A, B, C, and PEARL scores.

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RESULT AND DISCUSSION

Before presenting the data of the research results in the form of tables, it should be explained that the measurement of drug management achievements at the selection, planning, and procurement stages at Aulia Blitar Hospital was carried out using standard indicators that refer to the standards of the Ministry of Health (2008), SNARS (2012), Permenkes (2016), WHO (2011), and Quick et al. (2012). Each indicator is calculated based on a predetermined formula, then compared with standard values to determine the level of conformity between drug management practices in pharmaceutical facilities and applicable regulations.

This calculation was carried out through the examination of form documents, Fornas, planning documents and drug purchases, stock cards, order letters, invoices, and payment lists to distributors throughout 2019. The measurement results are then presented in the form of a table to make it easier to read the comparison between the achievement score and the standard score, so that it can be clearly seen which indicators have met the standard and which indicators still need improvement. All data in the following table are the result of direct calculations based on the original documents of the Pharmacy Installation of Aulia Blitar Hospital.

Table 1. Achievement of Selection, Planning, and Procurement Indicators

Stages	Indicator	Results	Standard	Differences
Selection	Compatibility with FRS	72,94%	76%	-3,06
Selection	Compatibility with Fornas	42,98%	76%	-33,02
Planning	Funds available vs needed	88,52%	100%	-11,48
Planning	Plan suitability vs use	118%	100%	+18
Planning	Proportions accepted	100%	100%	0
Procurement	Incorrect invoice	0,90%	0%	-0,90
Procurement	Delayed payment	0,16%	0%	-0,16

Table 1 shows that some indicators at the selection, planning, and procurement stages have not met the set standards. The suitability of drug items with the Hospital Formulary is close to the standard, but the conformity with Fornas is still low, indicating that the application of essential drug principles is not optimal. At the planning stage, the percentage of available funds that are lower than needed and the suitability of the planning with the reality of use exceeding 100% indicates weaknesses in the control of drug planning. Meanwhile, at the procurement stage, invoice errors and late payments are still found, indicating administrative and financial management problems that have an impact on the smooth supply of medicines.

Table 2. Priority Issues with Hanlon

Problem	BPR	OPR	Priorities
Funds are available < funds are needed	48,00	48,00	1
Delayed payment	39,66	39,66	2
Plan suitability vs use	37,33	37,33	3
Invoice errors	28,00	28,00	4
Kesesuaian Fornas	32,66	32,66	5
Kesesuaian FRS	18,33	18,33	6

Table 2 shows the results of the priority of the problem based on the Hanlon method, where the percentage of funds available versus the funds needed takes precedence. This is followed by late payments, conformity of planning with the reality of use, invoice errors, and conformity with Fornas and Hospital Formulary. This order of priority shows that the root of the problem of

drug management at Aulia Blitar Hospital lies in the aspect of managing the budget of pharmaceutical installations, which then has an impact on the weaknesses of planning, procurement administration, and implementation of drug selection.

Discussion

The results of the evaluation of drug management at Aulia Blitar Hospital show that the regulatory system, organizational structure, and drug management indicators have referred to national standards such as the Ministry of Health, SNARS, Permenkes, WHO, and Quick et al. However, the findings of the study show that there are several key indicators at the selection, planning, and procurement stages that have not met the standards. This condition emphasizes that the problem of drug management at Aulia Blitar Hospital is not caused by the absence of a system, but lies in managerial implementation, coordination between professions, and the management of the pharmaceutical installation budget.

At the drug selection stage, the indicator of the suitability of drug items with the Hospital Formulary reached 72.94% and the conformity with Fornas was only 42.98% of the standard of 76%. These findings show that although the regulations on the formulary preparation team have met the SNARS standard, the implementation of essential drug selection has not been optimal. Based on the results of the interviews included in the research results, the main factors that cause it are not all patients are BPJS patients, some Fornas drugs are not available on the market, and low compliance of doctors with the use of essential drugs. This condition is in accordance with what was stated by Saputera (2014) and Mompewa (2015) that the main problem of drug selection in hospitals is not the absence of a formulary list, but in the non-compliance of clinicians with the principle of essential drugs and the limited availability of drugs at distributors.

According to Seto (2008), the selection of good drugs must refer to the principle of doelmatig, which is conformity with the real needs of the service. When doctors still prescribe drugs outside of Fornas and are still approved by IFRS, the selection process loses its control function. This causes the planned drug list to no longer reflect rational needs, thus having an impact on the next stage of planning and procurement.

The biggest problem was found at the drug planning stage, especially in the indicator of the percentage of funds available compared to the funds needed which only reached 88.52% of the 100% standard. Based on the results of the study, the root of the problem is not that the hospital does not have funds, but because the revenue from the pharmaceutical installation is used for other needs outside of the pharmacy. As a result, pharmaceutical installations are unable to place drug orders on time. This condition is very much in line with the findings

of Sari (2011) and Ubit (2016) who stated that drug planning failures in hospitals are often caused by weak allocation of special budget for pharmaceuticals and the absence of financial separation of pharmaceuticals from other units.

The next problem is the indicator of planning conformity with the reality of use which reaches 118%, exceeding the 100% standard. In theory, a value above 100% indicates waste. The results of the study explained that this happened because doctors requested drugs outside of planning and were still approved by IFRS. As a result, the planned drugs are not used, while drugs that are outside the plan are actually purchased. This phenomenon is identical to that stated by Pratiwi (2011) that consumption-based planning without clinical control will tolerate irrational treatment habits.

According to Satibi (2015), effective drug planning must be controlled with ABC VEN analysis so that drugs that have vital and essential value become the top priority in planning. This lack of control causes a mismatch between the plan and the realization of use, as happened at the Aulia Blitar Hospital. The indicator of the proportion of products received as planned reached 100%, indicating that in terms of distributors and ordering mechanisms, the procurement system is actually running well. However, problems arise in procurement administration, namely invoice errors of 0.90% and late payment of 0.16% of the standard of 0%.

Although the value is small, the results of the study confirm that the impact is very large on the smooth supply of medicines. Distributors hold drug shipments when payment is late. This is in accordance with the theory of drug procurement according to Quick et al. (2012) that effective procurement requires timely payment as a form of trust between buyers and sellers. Seto (2008) stated that procurement must meet the principle of rechmatig, which is conformity with financial capabilities. When pharmaceutical funds are not available on time, this principle is not met, even though the procurement procedure is in accordance with regulations.

Based on Hanlon's weighting, the issue of the percentage of funds available is the first priority with the highest BPR and OPR values (48.00). Followed by late payment (39.66), planning conformity (37.33), invoice error (28.00), Fornas conformity (32.66), and FRS conformity (18.33). This sequence shows that the core problem is not in selection, but in budget management and internal coordination. This finding is very much in line with the research of Wati (2012) which shows that when the allocation of pharmaceutical funds is not clearly separated, all stages of drug management will be affected. Hanlon has successfully shown that improving pharmaceutical funds will automatically improve planning, procurement, and selection.

The improvement strategies proposed in the research results are: hospitals must have a special budget for pharmaceutical installations, socialization of

Fornas to doctors, evaluation of drug use at least once every three months, coordination of doctors and pharmacists in the preparation of formularies, and the application of ABC VEN analysis. This strategy is identical to the recommendations of Mompewa (2015) and Saputera (2014) which emphasize the importance of simultaneous clinical and financial control. According to Pudjaningsih (1996), drug management indicators are not only an evaluation measuring tool, but also a tool to set policy priorities. In the context of Aulia Blitar Hospital, the indicators have succeeded in showing that the weakness is not in pharmaceutical technicalities, but in the hospital management's policy towards pharmaceutical installations.

Thus, the results of this study answer the research objective that the achievement of selection, planning, and procurement standards is not fully appropriate, the causative factors are managerial and coordinated, and the most effective improvement strategies are determined through the Hanlon method with the main focus on strengthening pharmaceutical budgets and clinical control based on ABC VEN.

CONCLUSION

The evaluation shows that the main problem of drug management at Aulia Blitar Hospital is not in the selection, planning, or procurement system, but in budget management and coordination between health workers. Hanlon's method identifies that the main priority for improvement is to ensure the availability of funds according to the needs of drug procurement, followed by improvements in the payment system, suitability of planning, invoice administration, and compliance with Fornas.

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