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THE USE OF IE MATRIX AND SWOT MATRIKS IN SINGLE USE HAEMODIALYSIS SERVICE STRATEGY IN HOSPITAL X BANYUMAS DISTRICT

Nur Fitri Margaretna*[1], Wahyu Rhomadon[2], Purwadhi Purwadhi[2], Yani Restiani Widjaja[2]

[1]Klinik Pratama Soedirman, Jenderal Soedirman University
[2]Adhirajasa Reswara Sanjaya University, Bandung

ABSTRACT

Hemodialysis (HD) is vital for managing patients with end-stage chronic kidney disease, ensuring their quality of life. Hospital X in Banyumas District, a private Type C hospital, has adopted single-use dialyzers to enhance safety and minimize infection risks. This study employs the Internal-External (IE) and SWOT matrices to develop strategies for improving the hospital's single-use HD services. Data were gathered through interviews, questionnaires, and hospital records, focusing on internal and external factors affecting HD services. The IE matrix indicates that the hospital is positioned for aggressive growth, suggesting strategies like market penetration, product development, and supply chain integration. The SWOT analysis identifies several strengths, such as BPJS support and a strategic location, while addressing weaknesses like limited promotional activities and dependency on vendors. Opportunities include government health policies and technological advancements, counterbalanced by threats such as economic instability and increased competition. Key recommendations include strengthening internal coordination, leveraging BPJS support, optimizing promotional strategies, and addressing vendor dependency through diversification. These strategies aim to enhance efficiency, attract more patients, and ensure competitive advantage. By aligning internal strengths with external opportunities, Hospital X can sustainably grow its HD services and improve overall healthcare delivery.

Keywords: *hemodialysis, IE matrix, SWOT matrix, strategy, healthcare service*

Correspondence:
Nur Fitri Margaretna
Klinik Pratama Soedirman, Jenderal Soedirman University
Email: nur.margaretna@unsoed.ac.id

INTRODUCTION

Hemodialysis plays a crucial role in managing patients with end-stage chronic kidney disease, serving as a vital support to maintain patients' quality of life. One increasingly adopted approach is the use of single-use or disposable equipment in hemodialysis procedures. This method is considered safer as it reduces the risk of cross-infection, enhances service quality, and complies with patient safety standards in healthcare facilities (Wardani & Hartini, 2021).

Health service strategies focused on patient needs and safety require an in-depth analysis of the hospital's internal and external conditions. The SWOT (Strengths, Weaknesses, Opportunities, Threats) matrix and the Internal-External (IE) matrix are two strategic analysis tools commonly used to design health service strategies. The SWOT matrix analyzes internal and external factors affecting the organization, while the IE matrix maps the hospital's strategic position based on these factors (Sari et al., 2022).

The application of both matrices is relevant for planning single-use hemodialysis service strategies, particularly for hospitals aiming to enhance competitiveness and operational efficiency. Previous studies have shown that combining SWOT and IE analyses can help hospitals formulate measurable strategies oriented toward achieving long-term goals (Rahmawati & Susanti, 2020; Putra & Dewi, 2023).

Hospital X is a private Type C general hospital in Banyumas District, Central Java Province. It provides various healthcare services, including hemodialysis (HD). The Hemodialysis Unit at Hospital X began operations in 2015 with four machines and has since expanded to 36 HD machines, comprising 34 regular (non-infectious) machines and two designated for infectious patients. The hospital already uses single-use dialyzers. HD services at Hospital X cater to both general and National Health Insurance (JKN) patients. The HD unit operates in two shifts with 27 nurses, running from Monday to Saturday. The morning session is from 07:00 to 13:00 WIB, and the afternoon session starts at 13:00 and ends at 20:00 WIB. The number of HD treatments at the hospital has shown a significant increase, especially in the past two years (Figure 1).

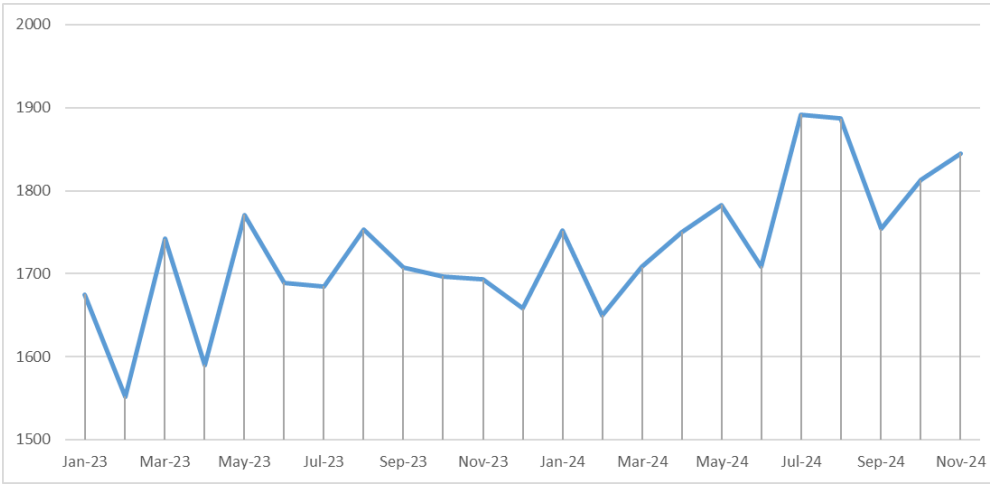

Figure 1. Graph of the Number of Hemodialysis Procedures at Hospital X

In Figure 1, it is evident that the fluctuating increase in the number of hemodialysis procedures significantly affects the efficiency of hemodialysis machine utilization at Hospital X. This fluctuation may occur because patients' need for hemodialysis treatment is not always consistent, both in terms of the number of patients requiring services and the frequency of procedures performed. When the number of patients suddenly increases, the

hospital may experience a shortage of available machines or require more time to complete the procedures, leading to long queues and extended waiting times for patients. Conversely, when the number of procedures decreases, the available hemodialysis machines may be underutilized, resulting in resource wastage and higher operational costs per procedure. Additionally, this fluctuation impacts machine maintenance, as frequently used machines may require more intensive care, while machines that are rarely used may experience performance degradation or damage due to underutilization. Therefore, the imbalance in the number of hemodialysis procedures directly affects the hospital's operational efficiency, including machine utilization, time management, and costs incurred.

Another issue that may arise is operational efficiency, particularly concerning treatment costs and service rates. Implementing single-use hemodialysis in accordance with standards incurs higher costs for consumables compared to reuse, while the rates reimbursed through the INA-CBG scheme often fail to cover operational costs. Consequently, Hospital X faces challenges in maintaining a balance between service quality and financial sustainability. Limited budgets for technology upgrades, machine maintenance, and staff training further exacerbate overall operational efficiency. The hospital's rate for a single-use hemodialysis procedure is IDR 1,760,191.

Table 1. Total Hospital Rate per Single Hemodialysis Procedure at Hospital X

Component	Cost (IDR)
Consumables	628,962
Service Fee	150,000
Facility Fee	750,000
Medication	87,094
Routine Laboratory Examination	19,135
Specialist Doctor Examination Fee	125,000
Total	**1,760,191**

Table 2. Comparison of Single-Use Hemodialysis Rates at Hospital X

Cost Type	**Cost (IDR)**
Hospital Rate	1,760,191
INA-CBG Rate	875,000
Difference	**885,191**

Based on the data in Table 1, all detailed costs included in the patient billing and referred to as the hospital rate already account for the expected profit of IDR 1,760,191. However, according to Indonesian Ministry of Health Regulation No. 3 of 2023 on Service Tariff Standards for the National Health Insurance (JKN) Program, the INA-CBG rate for single-use hemodialysis at Class C private hospitals for outpatient care is set at IDR 875,000. This rate is considered too low and inadequate to cover medical services, medication costs, and current prices of consumables. As shown in Table 2, the hospital rate is significantly higher than the INA-CBG rate, leading to financial losses for the hospital.

Therefore, it is essential to formulate a marketing strategy to enhance efficiency, increase the number of procedures, and attract more patients. At Hospital X, implementing single-use hemodialysis presents both a challenge and an opportunity to provide optimal care that meets patient needs and available resources. Conducting this research at Hospital X is crucial, given the intensive and continuous care required by hemodialysis patients. Without proper management of the hospital's challenges—such as reliance on specific vendors and

competition among healthcare facilities—patients' health risks could escalate. For instance, dependence on a single supplier for consumables could lead to delays in treatment, an increased risk of infection, or shortages of essential equipment for urgent hemodialysis procedures. This could jeopardize the safety of critically ill patients, worsen treatment outcomes, or even raise medical costs due to complications.

Operationally, if Hospital X fails to address these challenges, the consequences could be significant. Reliance on a sole supplier might disrupt the hospital's operations, hinder medical services, and damage its reputation among patients and the community. Furthermore, if the hospital fails to recognize and leverage external opportunities, such as technological advancements or shifts in healthcare policies, it risks falling behind in terms of operational efficiency and service accessibility. By strengthening internal factors and capitalizing on external opportunities, Hospital X can improve service quality, reduce operational costs, and enhance patient satisfaction and safety. It is therefore imperative for the hospital to respond promptly to the findings of this study to continue providing the best and most sustainable care.

This research aims to evaluate the application of the IE and SWOT matrices in formulating a strategy for single-use hemodialysis services, with the hope of contributing to the development of healthcare services at the hospital. The use of SWOT and IE matrices is particularly relevant as they enable a comprehensive analysis of internal strengths and weaknesses as well as external opportunities and threats simultaneously. The SWOT matrix helps identify strategic factors influencing hemodialysis services, such as strengths in service efficiency and opportunities arising from the JKN policy, while the IE matrix offers a more structured perspective for determining the hospital's strategic position based on evaluations of internal and external factors. This research provides a novel contribution by combining these two matrices to offer a clearer picture of Hospital X's competitive position as a Class C private hospital, as well as strategic recommendations to address internal challenges and leverage external opportunities effectively. With this approach, the hospital can not only respond to current conditions but also proactively plan steps to enhance its competitiveness and the quality of hemodialysis services in the future.

METHOD

The research method used is descriptive-analytical. The sampling technique applied is purposive sampling, with four respondents selected based on their comprehensive knowledge of the hemodialysis services at the Dialysis Unit of Hospital X. The study was conducted at the Dialysis Unit of Hospital X in November 2024. The data used in this research includes both primary and secondary data. Primary data were obtained through interviews and questionnaires completed by the Deputy Director, Nursing Manager, Head of the Unit, and Dialysis Physician. Secondary data were gathered from internal hospital documents such as monthly reports, patient registers, patient numbers, hospital policies, and other relevant information.

`The research began by obtaining approval from relevant authorities at Hospital X, a Type C private hospital in Banyumas District. Subsequently, four respondents were selected for interviews and given questionnaires covering internal and external factors affecting HD services. The data processing stage involved evaluating whether all data had been fully collected. Once complete, the data were analyzed descriptively.

Data Analysis

a. IFE and EFE Matrices

1. Factor Identification

This stage involves identifying internal and external factors of the hemodialysis (HD) service at Hospital X. Internal factors are identified by listing the strengths and weaknesses, while external factors are listed as opportunities and threats. Positive factors (strengths and opportunities) are presented before negative factors (weaknesses and threats).

2. Weight Assignment for Each Factor
   Assign weights to each internal and external factor based on their relative importance. The total weight should sum to 1.0 for both IFE and EFE.
3. Rating
   Ratings are assigned by distributing a questionnaire to respondents, covering identified internal and external factors. The rating reflects how effectively the hospital's strategy manages these factors, on a scale from 1 to 4:
   a) 4: The hospital's strategy manages the factor very well.
   b) 3 : The hospital's strategy manages the factor slightly above average.
   c) 2: The hospital's strategy manages the factor slightly below average.
   d) 1: The hospital's strategy manages the factor poorly.
4. Weight and Rating Multiplication
   Multiply the weight of each factor by its corresponding rating to obtain a weighted score. Sum all the weighted scores to get the total IFE (Internal Factor Evaluation) and EFE (External Factor Evaluation) scores.

b. IE (Internal-External) Matrix

1. Constructing the IE Matrix: Use the IFE and EFE scores to populate the IE matrix.
2. Positioning on the IE Matrix: The matrix has nine cells with two dimensions:
   a) X-axis (IFE Score):
      1) Low (1.0 - 1.99)
      2) Moderate (2.0 - 2.99)
      3) High (3.0 - 4.0)
   b) Y-axis (EFE Score):
      1) Low (1.0 - 1.99)
      2) Moderate (2.0 - 2.99)
      3) High (3.0 - 4.0)
3. Position Analysis : Analyze the hospital's strategic position based on its placement within the matrix.

c. SWOT Matrix (Strengths, Weaknesses, Opportunities, Threats)

1. SWOT Factor Identification: List strengths, weaknesses, opportunities, and threats in a four-quadrant table.
2. Quadrant Classification:
   a) SO (Strengths-Opportunities): Leverage strengths to capitalize on opportunities.
   b) WO (Weaknesses-Opportunities): Address weaknesses to take advantage of opportunities.
   c) ST (Strengths-Threats): Use strengths to mitigate threats.
   d) WT (Weaknesses-Threats): Minimize weaknesses to avoid threats.
3. Strategy Formulation for Each Quadrant:
   a) SO Strategies: Use internal strengths to exploit external opportunities.
   b) WO Strategies: Overcome weaknesses by leveraging opportunities.
   c) ST Strategies: Utilize strengths to counter or reduce threats.
   d) WT Strategies: Develop defensive strategies to avoid threats by reducing weaknesses.

DISCUSSION

A. Internal Environment Analysis

Internal environment analysis involves examining factors within the organization that may affect the achievement of predetermined goals. In strategic management, it is essential to focus on the internal environment to maximize strengths and address weaknesses that may hinder performance. Companies can develop strategies aligned with their objectives and business conditions by effectively leveraging internal resources and competencies. In strategic management, the internal environment refers to elements within an organization that influence the planning and implementation of business strategies. These include aspects such as human resources (HR), corporate culture, systems, and internal processes within the organization (Fikri, et al., 2024).

Internal environment analysis is conducted by identifying internal factors based on indicators of strengths and weaknesses. This identification process aims to assess and evaluate strategic internal factors that impact the success of hemodialysis services (Manurung, et al., 2024), including the problem of patient anxiety (Wahyudin et al., 2021). The internal factors in this study are based on the conditions of the Dialysis Unit at Hospital X in terms of management, marketing, education, development, and hospital information systems. According to the survey results, several strengths and weaknesses were identified in the internal environment analysis at Hospital X, Banyumas District, as outlined in Table 3.

Table 3. Identification of Internal Factors for Hemodialysis Services at Hospital X, Banyumas District

Internal Factors	Strengths	Weaknesses
	Management	
Planning	Scheduled HD procedures	Unpredictable emergency (cito) HD procedures
Organizing	One nurse handles a maximum of three patients	Insufficient nursing staff during absences, leading to nurses handling more than three patients
Actuating	Shift reports and briefings before HD procedures	Resistance to change among medical staff
Controlling	Routine completion of IRR and monthly reporting to management	Inconsistent internal evaluations and audits
	Marketing	
Product	Special isolation rooms for Hepatitis B and TB patients	Limited to one room each for Hepatitis B and TB patients
	No service differentiation between JKN and non-JKN patients	
	Accepting outpatient Hepatitis B and C patients	
Price	Acceptance of JKN/BPJS coverage	High costs for non-BPJS HD patients
Place	Easily accessible hospital location	Dialysis unit located on the second floor

Promotion	Active participation in the district HD service WhatsApp group	Ineffective social media and website promotion
Process	Efficient service process: quick registration, timely scheduling, and clear care pathways	Coordination gaps between medical and administrative teams
Person	General practitioners certified in HD	Delegation of tasks during staff leave not well implemented
	Majority of nurses certified in HD	Long waiting time for nurses to undergo HD training
Physical evidence	Comfortable and clean HD rooms	Lack of educational media
Productivity & Quality	Licensing recommendations meet HD service standards	Occasionally exceeding patient capacity
Research & Development	Hospital facilitates HD training for uncertified doctors and nurses	Internal HD training not conducted regularly
Information System	Integrated electronic medical records with BPJS	HD menu in electronic medical records is not user-friendly

The identification of internal factors based on strengths and weaknesses was followed by the creation of the IFE matrix. The IFE matrix provides essential information for strategy formulation. This strategic tool serves to summarize and evaluate the key strengths and weaknesses within functional areas and can be used as a basis for identifying and assessing relationships between these areas (Isniati & Fajriansyah, 2019). The results of the IFE matrix in Table V indicate that the cumulative score for strengths (2.12) influencing the development of hemodialysis services is greater than that of weaknesses (1.12). This suggests that the development of hemodialysis services at Hospital X in Banyumas District relies more on strengths rather than weaknesses, which could hinder service growth.

Table 4. Internal Factor Evaluation (IFE) Matrix for Hemodialysis Services at Hospital X, Banyumas District

No.	Internal Factors	Weight	Rating	Score
	Srengths			
1.	Scheduled HD procedures	0,04	3,75	0,14
2.				
3.	One nurse handles a maximum of three patients	0,04	3,75	0,14
4.	Shift reports and briefings before HD procedures	0,03	3,5	0,12
5.	Routine completion of IRR and monthly reporting to management	0,03	3,25	0,11
6.	Special isolation rooms for Hepatitis B and TB patients	0,03	3	0,09
7.	No service differentiation between JKN and non-JKN patients	0,03	3,5	0,12
8.	Accepting outpatient Hepatitis B and C patients	0,03	3,5	0,12
9.	Acceptance of JKN/BPJS coverage	0,04	4	0,16
10.	Easily accessible hospital location	0,04	4	0,16

11.	Active participation in the district HD service WhatsApp group	0,03	2,75	0,08
12.	Efficient service process: quick registration, timely scheduling, and clear care pathways	0,03	3,25	0,11
13.	General practitioners certified in HD	0,04	3,75	0,14
14.	Majority of nurses certified in HD	0,03	3	0,09
15.	Comfortable and clean HD rooms	0,03	3,25	0,11
16.	Licensing recommendations meet HD service standards	0,04	4	0,16
17.	Hospital facilitates HD training for uncertified doctors and nurses	0,04	4	0,16
18.	Integrated electronic medical records with BPJS	0,03	3,5	0,12
				2,12
	Weaknesses			
19.	Unpredictable emergency (cito) HD procedures	0,03	3,25	0,11
20.	Insufficient nursing staff during absences, leading to nurses handling more than three patients	0,03	2,75	0,08
21.	Resistance to change among medical staff	0,02	2	0,04
22.	Inconsistent internal evaluations and audits	0,02	2,25	0,05
23.	Limited to one room each for Hepatitis B and TB patients	0,03	2,75	0,08
24.	High costs for non-BPJS HD patients	0,03	3	0,09
25.	Dialysis unit located on the second floor	0,03	3,5	0,12
26.	Ineffective social media and website promotion	0,02	2,25	0,05
27.	Coordination gaps between medical and administrative teams	0,02	2,5	0,06
28.	Delegation of tasks during staff leave not well implemented	0,02	2,5	0,06
29.	Long waiting time for nurses to undergo HD training	0,02	2,25	0,05
30.	Lack of educational media	0,03	2,75	0,08
31.	Occasionally exceeding patient capacity	0,03	3,25	0,11
32.	Internal HD training not conducted regularly	0,03	2,75	0,08
33.	HD menu in electronic medical records is not user-friendly	0,03	2,75	0,08
				1,12
	Total IFE Score	**1**		**3,24**
	The difference between Strengths and Weaknesses (X)			**1**

B. External Environment Analysis

The external environment analysis is structured based on opportunities and threats from outside the hospital that may affect HD services at Hospital X. In this study, the external environment is divided into two parts: the macro environment and the micro environment. The variables of opportunities and threats in this study are presented in Table 5.

Table 5. Identification of External Factors for Hemodialysis Services at Hospital X, Banyumas District

External Factors	Opportunities	Threats
	Micro Environment	

Supplier	Medical supplies provided on demand	Dependency on vendors for supplies
	Bulk purchase discounts	Fluctuating prices of supplies
Customer	Public trust in Hospital X	Ease of patient transfer to other hemodialysis units
Competitors	Good reputation of Hospital X in Banyumas District	Increasing number of competing hemodialysis clinics
Industry Environment		
Competition among Healthcare Facilities	Good reputation with higher service standards than competitors	Competitors offering better facilities and lower prices
New Entrants	Growing public awareness of hemodialysis	Shift of patients from hemodialysis to Continuous Ambulatory Peritoneal Dialysis (CAPD)
Macro Environment		
Demographics	Increasing number of chronic kidney disease patients requiring hemodialysis	Unequal population distribution
Economy	Support from the National Health Insurance (JKN) program	Economic instability or crises
Socio-Cultural	Increasing public awareness of the importance of hemodialysis	Religious beliefs that restrict hemodialysis treatment
Politics	Supportive government programs and health policies	Changes in regulations and increased standards for HD units
Technology	Advances such as single-use dialyzers	High initial investment costs for new technology

After identifying external factors, the analysis proceeded with the EFE (External Factor Evaluation) matrix. The purpose of the EFE matrix analysis is to evaluate and assess external strategic factors that can influence the success of the service (Lisman, Soewondo, Istanti, & Aini, 2023). Table VII shows that the cumulative value of opportunities (1.94) is greater than that of threats (1.53). This indicates that the opportunities have greater potential to develop the hemodialysis service compared to the threats that may hinder its progress.

The highest opportunity score (0.21) is attributed to the support from the National Health Insurance (JKN) program, such as BPJS, and favorable healthcare policies. In 2015, there was a significant shift in hemodialysis funding, with 86% of coverage coming from the National Health Insurance (JKN). Of these, 71% were Contribution Assistance Recipients (PBI), while 15% were non-PBI patients (Rosmila, Yaya, & Pribadi, 2020). By 2018, the proportion of hemodialysis funding from JKN increased to 91%, with 71% from non-PBI JKN and 19% from PBI JKN (Indonesian Nephrology Association, 11th Report of the Indonesian Renal Registry, 2018). This aligns with the 2019 regulation mandating that all Indonesian citizens become JKN members. Hospital X in Banyumas District provides hemodialysis services for BPJS-insured patients, making this policy a significant opportunity for the Dialysis Unit to expand its services.

Table 6. External Factor Evaluation (EFE) Matrix for Hemodialysis Services at Hospital X, Banyumas District

No.	External Factors	Weight	Rating	Score
	Opportunities			
1.	Procurement of medical supplies according to demand	0,05	3,75	0,19
2.	Bulk purchase discounts	0,04	3,25	0,14
3.	Public trust in Hospital X	0,05	3,75	0,19
4.	Good reputation of Hospital X in Banyumas District	0,05	3,75	0,19
5.	Higher service standards compared to competitors	0,05	3,75	0,19
6.	Increased awareness of hemodialysis	0,04	3,25	0,14
7.	Growing number of chronic kidney disease patients	0,05	3,75	0,19
8.	Support from the National Health Insurance (JKN) program	0,05	4	0,21
9.	Rising public awareness of the importance of hemodialysis	0,04	3,25	0,14
10.	Government health policies and JKN program support	0,05	4	0,21
11.	Advances in technology, such as single-use dialyzers	0,05	3,5	0,16
	Total Opportunities			**1,94**
	Threats			
12.	Dependence on vendors for supplies	0,05	3,5	0,16
13.	Price fluctuations of medical supplies	0,03	2,25	0,07
14.	Ease of patient transfer to other units	0,05	3,5	0,16
15.	Increasing number of hemodialysis clinics	0,05	3,5	0,16
16.	Competitors offering better facilities and lower prices	0,05	3,5	0,16
17.	Shift from hemodialysis to CAPD	0,03	2,5	0,08
18.	Unequal population distribution	0,04	3,25	0,14
19.	Economic instability or crises	0,04	3,25	0,14
20.	Religious beliefs that restrict hemodialysis treatment	0,05	3,5	0,16
21.	Changes in regulations and increased standards for HD units	0,05	3,75	0,19
22.	High initial investment costs for new technology	0,04	2,75	0,10
	Total Threats			**1,53**
	Total EFE Score	**1**		**3,48**
	The difference between Opportunities and Threats (Y)			**0,41**

C. Internal External (IE) Matrix

The IE (Internal-External) Matrix positions various divisions or business units within an organization in a nine-cell display. There are two main dimensions that serve as the basis of the IE Matrix: the total IFE score on the X-axis and the total EFE score on the Y-axis. The total IFE score on the X-axis, ranging from 1.0 to 1.99, reflects a weak internal position; a score of 2.0 to 2.99 is considered moderate, and a score of 3.0 to 4.0 indicates a strong position. On the Y-axis, the total EFE score of 1.0 to 1.99 is categorized as low, 2.0 to 2.99 as moderate, and 3.0 to 4.0 as high.

The IE Matrix is divided into three groups, each implying different strategies. First, business units positioned in cells I, II, or IV are categorized as growing businesses

(grow and build) and are recommended to invest further. Second, business units located in cells III, V, and VII are managed with a hold and maintain strategy, with a recommendation to continue current activities to maintain the status quo. Product development and market penetration are commonly used approaches. Third, business units positioned in cells VI, VIII, and IX are businesses that need to be reduced or divested (harvest or divest). Harvesting refers to capitalizing on cash flow from product sales at the end of the product cycle. This occurs at the end of the product life cycle, where products in the market can no longer be used to increase revenue (Thian, 2023; Yunus, et al., 2024).

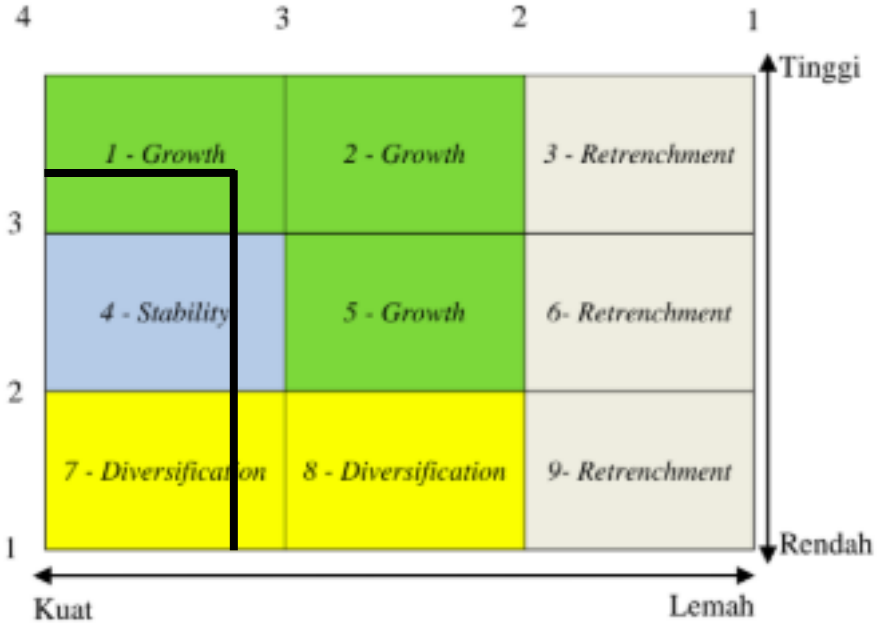

Figure 2. IE Matrix of Hemodialysis Services at Hospital X, Banyumas District

The total score of strengths and weaknesses on the IFE matrix (X-axis) is 3.24, and the total score of opportunities and threats on the EFE matrix (Y-axis) is 3.48 (Figure 1). In this case, the lower IFE score compared to the EFE score indicates inadequacies in utilizing internal factors, despite external opportunities being well utilized. This may be due to prominent internal weaknesses, such as a lack of consistency in internal controls, irregular internal training, and ineffective promotion, even though the hospital possesses several strengths. On the other hand, the higher EFE score shows that the hospital has successfully taken advantage of external opportunities, such as support from the National Health Insurance (JKN) program, increased public awareness of hemodialysis, and technological advancements supporting single-use dialysis services.

Additionally, the lower IFE score suggests that the hospital may face several internal challenges that limit its ability to fully capitalize on existing opportunities, such as strong competition with other hospitals, which may also be a barrier to strengthening its market position. Hospital X may also heavily depend on suppliers for consumables, which can reduce the hospital's flexibility and internal control. Deficiencies in staff training and development, or the limited availability of medical personnel, can hinder the hospital from improving the quality of internal services, even though many external opportunities can be utilized.

This score disparity indicates that Hospital X has a strong strategic position to seize opportunities from the external environment, but the utilization of internal resources and management of weaknesses have not yet been optimal. This condition emphasizes that although external factors provide a competitive advantage, long-term success still requires improving internal management to maximize external opportunities. For example, more effective promotion of services and improved internal training can enhance competitiveness while maintaining service standards.

The strategic position of hemodialysis services falls into cell I, which is growth or a growing business (grow and build). The focus strategies are integration strategies (forward integration, backward integration, and horizontal integration) and intensive strategies (market penetration, market development, and product development). These strategies can be implemented through supply chain integration to increase production at lower costs. The supply chain system can start from procurement, production of goods or services, distribution, and sales or services. The supply chain system includes suppliers, manufacturers, distributors, vendors, retailers, and customers (Lisman, Soewondo, Istanti, & Aini, 2023; Thian, 2023; Yunus, et al., 2024).

Supply chain integration is a strategy in which the hospital attempts to control more aspects of the supply process, from procuring materials to internal distribution. This integration can take the form of vertical integration (controlling more stages in the supply chain) or horizontal integration (expanding partnerships with suppliers). However, this strategy also comes with various challenges that may arise, whether in terms of logistics, finance, or human resources. From the logistics side, supply chain integration requires a more complex IT system to facilitate the flow of information and materials between various stages of the supply chain. Hospital X may need to invest in new technology to track inventory, procurement, and distribution more efficiently. This integration also requires tighter coordination between departments such as logistics, procurement, and medical services. Without a well-integrated system, poor coordination can cause delays or supply shortages, affecting medical services.

Financial challenges may also arise, as supply chain integration often requires significant investments in software systems, infrastructure, and new technology. Hospital X needs to evaluate whether it has sufficient budgets for this initial investment and whether the long-term benefits of operational efficiency can offset the costs. Besides the initial costs, an integrated system also requires routine maintenance and updates. Hospital X must ensure it can manage the budget sustainably to maintain and update the system.

Meanwhile, in terms of human resources, supply chain integration requires staff with skills in supply chain management, project management, and the use of complex information technology. Hospital X must identify and train staff capable of handling this complexity or may even need to recruit professionals with specialized expertise in supply chain management. Supply chain integration also requires significant organizational cultural changes. Staff across all parts must adapt to new systems and procedures, which may lead to resistance to change if not managed properly. Hospital X needs to implement an effective change management program to facilitate this transition.

D. SWOT Matrix

The SWOT matrix is a matching tool that helps managers develop four types of strategies: Strengths-Opportunities (SO), Weaknesses-Opportunities (WO), Strengths-Threats (ST), and Weaknesses-Threats (WT). The SWOT matrix is widely used in strategic planning; however, it has certain limitations. These include not providing a

clear path to achieve competitive advantage, reflecting only a single time frame, and potentially causing organizations to become overly focused on formulating internal and external strategies (Thian, 2023).

The hemodialysis service is positioned in Quadrant 1 (Figure 2) in the SWOT analysis quadrant. The quadrant determination is based on the X-axis, representing the difference between strengths and weaknesses (+1), and the Y-axis, representing the difference between opportunities and threats (+0.41). This indicates that the hemodialysis service at Hospital X in Banyumas District is in a highly favorable situation where strengths and opportunities are both dominant.

Strategies that can be implemented in this situation include aggressive growth-oriented policies. Alternative strategies include market development, market penetration, product development, forward integration, backward integration, horizontal integration, and related diversification (Isniati & Fajriansyah, 2019).

The alternative strategies for developing hemodialysis services (Table 7) are as follows:

1. SO Strategies: Optimize efficient services and BPJS support, strengthen promotions based on public trust, Utilize discounts on medical supplies (BHP) to reduce costs, and maintain high quality services and facilities.
2. WO Strategies: Enhance internal coordination through an integrated management system, increase promotional efforts via social media to boost visibility. develop online educational media to raise public awareness, and conduct regular internal training sessions to improve staff quality.
3. ST Strategies: Leverage electronic medical records to improve service management, optimize pricing of medical supplies (BHP) to remain competitive, enhance service standards to meet regulatory requirements, and provide incentives for certified nurses to improve staff retention.
4. WT Strategies: Address vendor dependency by diversifying BHP suppliers, perform routine audits to strengthen internal controls, and develop policies for better task delegation during emergencies.

Tabel 7. SWOT Analysis

	Strengths (S)	**Weaknesses (W)**
	1. Scheduled HD procedures 2. One nurse handles a maximum of three patients 3. Shift reports and briefings before HD procedures 4. Routine completion of IRR and monthly reporting to management 5. Special isolation rooms for Hepatitis B and TB patients 6. No service differentiation between JKN and non-JKN patients 7. Accepting outpatient Hepatitis B and C patients	1. Unpredictable emergency (cito) HD procedures 2. Insufficient nursing staff during absences, leading to nurses handling more than three patients 3. Resistance to change among medical staff 4. Inconsistent internal evaluations and audits 5. Limited to one room each for Hepatitis B and TB patients 6. High costs for non-BPJS HD patients

	8. Acceptance of JKN/BPJS coverage 9. Easily accessible hospital location 10. Active participation in the district HD service WhatsApp group 11. Efficient service process: quick registration, timely scheduling, and clear care pathways 12. General practitioners certified in HD 13. Majority of nurses certified in HD 14. Comfortable and clean HD rooms 15. Licensing recommendations meet HD service standards 16. Hospital facilitates HD training for uncertified doctors and nurses 17. Integrated electronic medical records with BPJS	7. Dialysis unit located on the second floor 8. Ineffective social media and website promotion 9. Coordination gaps between medical and administrative teams 10. Delegation of tasks during staff leave not well implemented 11. Long waiting time for nurses to undergo HD training 12. Lack of educational media 13. Occasionally exceeding patient capacity 14. Internal HD training not conducted regularly 15. HD menu in electronic medical records is not user-friendly
Opportunities (O) 1. Procurement of medical supplies according to demand 2. Bulk purchase discounts 3. Public trust in Hospital X 4. Good reputation of Hospital X in Banyumas District 5. Higher service standards compared to competitors 6. Increased awareness of hemodialysis 7. Growing number of chronic kidney disease patients 8. Support from the National Health Insurance (JKN) program 9. Rising public awareness of the importance of hemodialysis	**Strengths – Opportunities (SO)** 1. Optimize efficient services and BPJS support to attract more patients. 2. Strengthen trust-based promotion within the community. 3. Utilize BHP purchase discounts to reduce operational costs. 4. Maintain high quality services and facilities.	**Weaknesses – Opportunities (WO)** 1. Improve internal coordination through an integrated management system. 2. Enhance promotion via social media to boost the hospital's reputation. 3. Develop online educational media to raise community awareness. 4. Conduct regular internal training to enhance human resource quality.

10. Government health policies and JKN program support 11. Advances in technology, such as single-use dialyzers		
Threats (T) 1. Dependence on vendors for supplies 2. Price fluctuations of medical supplies 3. Ease of patient transfer to other units 4. Increasing number of hemodialysis clinics 5. Competitors offering better facilities and lower prices 6. Shift from hemodialysis to CAPD 7. Unequal population distribution 8. Economic instability or crises 9. Religious beliefs that restrict hemodialysis treatment 10. Changes in regulations and increased standards for HD units 11. High initial investment costs for new technology	**Strengths – Threats (ST)** 1. Leverage electronic medical records to strengthen cost and service control. 2. Optimize BHP pricing to mitigate competitive pressures. 3. Improve service standards to comply with new regulations. 4. Provide incentives for certified nurses to prevent them from moving to competitors.	**Weaknesses – Threats (WT)** 1. Address vendor dependency by diversifying BHP suppliers. 2. Conduct regular audits to strengthen internal controls. 3. Develop better task delegation policies for emergency situations.

Based on the formulated strategies, it is necessary to strengthen marketing strategies to increase the number of hemodialysis patients by leveraging the hospital's internal strengths and external opportunities. Based on the SWOT analysis and the IE matrix at Hospital X in Banyumas District, one of the internal strengths is service efficiency and the hospital's good reputation. By supporting technology-based promotion such as social media and expanding information outreach through community education, the hospital can increase public awareness of the benefits of single-use hemodialysis services. The use of digital marketing (such as social media and an accessible website) can be highly effective in raising awareness about chronic kidney disease and the importance of hemodialysis. Additionally, providing educational information to the public about the hemodialysis process, its benefits, and follow-up care can help reduce stigma and increase patient interest.

The support of the National Health Insurance (JKN) program is a significant opportunity to reach more patients requiring hemodialysis services but with financial constraints. Effective marketing strategies, such as strengthening collaboration with referral providers and enhancing the hospital’s image as a provider of high-quality services, can attract more patients to choose this facility. Building partnerships with other healthcare providers, such as kidney clinics or specialist doctors, can expand referral channels for hemodialysis patients. These marketing strategies can establish a stronger referral network

and introduce the hospital's services to more prospective patients. Highlighting success stories of patients who have undergone hemodialysis at the hospital can serve as a very effective marketing tool. This not only demonstrates success in treatment but also provides confidence to new patients who may feel anxious about the hemodialysis procedure. With this approach, the number of hemodialysis patients at the hospital has the potential to increase significantly.

Another strategy for developing hemodialysis services (Table VIII) is to conduct regular internal training, which can significantly reduce staff dependency on already certified dialysis staff. By providing scheduled and systematic training, doctors, nurses, and technicians who are not yet certified can meet the required competency standards for hemodialysis services. This not only improves service quality but also ensures the availability of reliable staff at all times, without having to rely solely on certified staff. Through routine internal training, the hospital can ensure that it has staff ready at any time to address medical needs, even in emergencies or in the absence of certified staff.

Internal training allows for more efficient resource management because the hospital can tailor training materials to the specific needs of the service and hospital operations strategy. Moreover, providing continuous training can improve job satisfaction and staff loyalty, as they feel valued and given opportunities to grow. This can reduce staff turnover rates, which often occur due to a lack of professional development opportunities. By training internal staff, the hospital can ensure that care standards and operational procedures (SOPs) are applied more consistently. Well-designed training can ensure that all staff have the same understanding of how to perform safe hemodialysis medical procedures, thereby reducing the risk of errors and improving service quality.

Another strategy to reduce vendor dependency is to diversify suppliers of consumables to support hemodialysis services at Hospital X in Banyumas Regency. Supplier diversification is a strategy aimed at reducing dependence on one or a few single suppliers and increasing flexibility while mitigating risks associated with the supply of essential goods and services. The feasibility of supplier diversification can be influenced by logistical, financial, and human resource challenges. From a logistical perspective, the hospital's dependence on a single vendor for consumables poses a major risk, as price fluctuations and delivery delays can disrupt operational continuity. Supplier diversification has the potential to mitigate this risk but requires a more complex logistics management system and longer time for selection and contract negotiations. In this case, the hospital needs to establish a logistics system capable of efficiently managing multiple suppliers. With many suppliers, this can create complexities in the processes of receiving goods, inventory management, and distribution. A more advanced and integrated hospital management system is essential to ensure optimal stock levels. Additionally, although supplier diversification can reduce dependence on one party, it can increase challenges in maintaining the quality and consistency of supplies. Hospital X must ensure that all suppliers meet the same quality standards and deliver goods on time to avoid disruptions in the hemodialysis service process.

From a financial perspective, diversification efforts often require significant initial investments, such as developing inventory management systems, staff training, or implementing new technology. However, long-term cost savings through competitive price negotiations and efficient inventory control can offset these initial burdens. Furthermore, a potential challenge that may arise is that more suppliers might offer less competitive prices compared to exclusive contracts with a single large supplier. The hospital needs to ensure that by adding more suppliers, they can still obtain affordable prices that align with the budget.

Meanwhile, in terms of human resources, implementing this strategy requires strengthening internal capacity, including training staff to manage suppliers more professionally and developing a dedicated logistics or procurement team. Procurement staff and logistics managers at Hospital X need to be trained to manage and negotiate with multiple suppliers. This requires deeper skills in supply chain management and the ability to evaluate and select the right suppliers. With more suppliers, the hospital must also have a sufficiently strong administrative system to manage contracts, deliveries, and payments. Trained staff will be needed to monitor delivery quality and resolve arising issues, which may add to the administrative workload.

Overall, the strategies of supplier diversification and supply chain integration hold great potential for improving the efficiency and competitiveness of hemodialysis services at Hospital X. However, successful implementation requires careful planning, adequate budget support, and strengthened operational management to address existing challenges. If Hospital X can effectively overcome these challenges, these strategies can improve operational efficiency, reduce dependence on single suppliers, and strengthen the availability of medical supplies needed to provide optimal hemodialysis services.

CONCLUSION

Based on the analysis of the IE and SWOT matrices, the single-use hemodialysis service at Hospital X is in a strategic position that supports growth and service development. The recommended strategies include market and product development, as well as supply chain integration to enhance efficiency and competitiveness. Leveraging external opportunities such as support from the National Health Insurance (JKN) program and new technologies is a key factor for success. However, challenges such as vendor dependency and the need to increase internal capacity must be addressed with appropriate strategies, such as supplier diversification and regular training. An aggressive growth strategy can strengthen Hospital X's position in the competitive hemodialysis service sector.

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