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Challenges and Strategies for Fulfilling Specialist and Subspecialist Doctors for Improvement Service Hospital Referral: Systematic Literature Review

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ABSTRACT

Introduction: The availability of specialist and subspecialist doctors in sufficient numbers and with appropriate competencies is an absolute prerequisite for the success of the transformation of referral services. Data from the Ministry of Health in 2024 shows that Indonesia only has 0.18 specialist doctors per 1,000 population spread across various health facilities. This figure is still far below the ideal target of 0.28 per 1,000 population, so an additional 29,179 specialist doctors are needed.

Objective: This research aims to identify obstacles that hinder availability doctor specialists and subspecialists at the hospitals, as well as to explore effective approaches to overcome these problems.

Method: This study uses the Systematic Literature Review method. The method of selecting articles in this study is to search for articles that meet the inclusion and exclusion criteria through the Google Scholar database with the keywords "efforts to fulfill specialist and subspecialist doctors", "challenges to fulfill specialist and subspecialist doctors", "challenges and strategies to fulfill specialist and subspecialist doctors", "challenges and strategies to fulfill medical personnel". This study conducted a literature review of 14 relevant scientific publications, published in the last five years (2020-2024).

Result: The results of the study identified a number of significant obstacles in efforts to increase the availability of specialist and subspecialist doctors in hospitals, including aspects of regulation, budget allocation, human resource management, infrastructure, and monitoring and evaluation mechanisms.

Conclusion: The interconnection between these five aspects requires the implementation of a holistic strategy in an effort to increase the availability of specialist and subspecialist doctors in hospitals.

Keywords: Fulfillment; Specialist Doctors; Referral Services; Hospitals

INTRODUCTION

Indonesia is experiencing various health issues that must be resolved by the Central Government and Regional Governments involving various stakeholders to be resolved collaboratively. Among these issues, there is an increase in the prevalence of non-communicable diseases (including Stroke, Kidney, Cancer) and contributes to the most deaths in Indonesia [2], the demographic and epidemiological transition in Indonesia has caused a disease burden (triple burden of disease) consisting of nutritional problems, infectious diseases, and non-communicable diseases as well as the re-emerging dan emerging disease diseases. Data from 2016 showed that non-communicable diseases (NCDs) contributed significantly to global mortality, at 72%. This figure is almost four times higher than the total deaths from infectious diseases, maternal mortality, neonatal mortality, and nutritional problems. This condition is in line with data collected in the 2023 SKI that 7 types of NCDs in order of highest prevalence are hypertension, diabetes, asthma, heart disease, stroke, chronic kidney disease, and common cancer [3]. BPJS Kesehatan 2022 data shows that four main diseases, namely heart disease, cancer, stroke, and kidney failure, contribute to a cost burden of IDR 24.06 trillion [4]. The increase in cases and treatment costs for these diseases is faced with various obstacles, including limited access for the community, especially in remote areas, to referral health facilities, low quality hospital services, long waiting times to obtain health services, and uneven distribution of medical devices, specialist doctors, and subspecialists throughout Indonesia [2].

The Ministry of Health seeks to improve Indonesia's health system through 6 pillars of health system transformation. Through the second pillar, the transformation of referral services focuses on strengthening the network of referral hospitals for priority diseases: Cancer, Heart, Stroke, Urology and Maternal and Child Health. The success of the transformation of referral services is highly dependent on the availability of specialist and subspecialist doctors, both in terms of type, quantity and quality, as fundamental resources that have large leverage data for the goal of improving health services. In 2024, 2,828 specialist doctors are needed for priority KJSU-KIA services and 1,269 specialist doctors for basic services [9]. Although there are regulations, there are still several hospitals that do not meet the minimum standards for the availability of specialist doctors, be it basic specialists, supporting specialists, or other specialists [11]. The limited number of health workers is a global problem that is not only experienced by Indonesia. Various countries with different socio-economic levels also face similar challenges, both in terms of education, workforce regulation, and distribution and retention of health workers in health care facilities [1].

Until 2021, only about three-quarters (74.9%) of district/city hospitals have successfully met the requirements to have 7 types of basic specialists. Through a study conducted by Bappenas in 2020, it was found that the ratio of the number of specialist doctors to the population in Indonesia is still much lower than other countries such as Malaysia (1.3) and Turkey (0.6), with a ratio of only 0.163 specialist doctors per 1,000 population [14,16]. On the other hand, Indonesia still lacks around 29,179 specialist doctors to achieve the target ratio of 0.28 per 1,000 population, whereas currently there are only 49,670 specialist doctors or 0.18 per 1,000 population spread across various health facilities [15]. In terms of province and district/city, it can be seen that as many as 305 (36.8%) hospitals do not yet have 7 basic specialist types, including 116 pediatricians, 101 internal medicine specialists, 177 clinical pathology specialists, 136 surgical specialists, 159 anesthesiologists, 121 obstetricians and gynecologists, and 185 radiologists [16]. In terms of distribution, as many as 59% of specialist doctors in Indonesia are concentrated on the island of Java, resulting in more than 30 other provinces lacking specialist medical personnel [8]. In addition to uneven distribution and limited production capacity, the fulfillment of the need for specialist doctors is also hampered by the lack of interest of specialist doctors to be placed in remote areas due to the long distance from their families, the small number of patients, and limited opportunities for self-development.

Through the transformation of the fifth pillar in the health system, the Government is trying to meet the need for health human resources. However, efforts to overcome the shortage of specialist doctors are estimated to take around 10 years, so it is necessary to develop a strategy to fulfill specialist doctors in Hospitals. Law Number 17 of 2023 requires the Central and Regional Governments to plan and provide sufficient, appropriate, competent, and evenly distributed medical personnel to support the sustainability of health development [13]. This encourages researchers to focus on the challenges faced and strategies in meeting the availability of specialist and subspecialist doctors to strengthen the referral hospital network for priority diseases: Cancer, Heart, Stroke, Urology and Maternal and Child Health in Indonesia.

METHOD

This study uses a Systematic Literature Review approach following the PRISMA guidelines. Researchers collect and review previous studies related to the challenges and strategies for fulfilling specialist and subspecialist doctors. The focus of this study is how the challenges and strategies for fulfilling specialist and subspecialist doctors are in order to improve referral services in hospitals. The inclusion criteria in this study are articles in the form of scientific journals or articles published in 2020 to 2024, articles are available in full text in Indonesian or English

that can be accessed for free. Literature searches were carried out by utilizing the Google Scholar search feature with the keywords "efforts to fulfill specialist and subspecialist doctors", "challenges to fulfill specialist and subspecialist doctors", "challenges and strategies for fulfilling specialist and subspecialist doctors", "challenges and strategies for fulfilling medical personnel" so that 17,440 journals were identified and eligibility criteria were carried out based on the title and abstract. Exclusion criteria are literature outside 2020-2024, articles are not full text, the contents of the article are not related to the challenges and strategies for fulfilling specialist and subspecialist doctors. The research literature search can be seen in the reference search diagram (Figure 1).

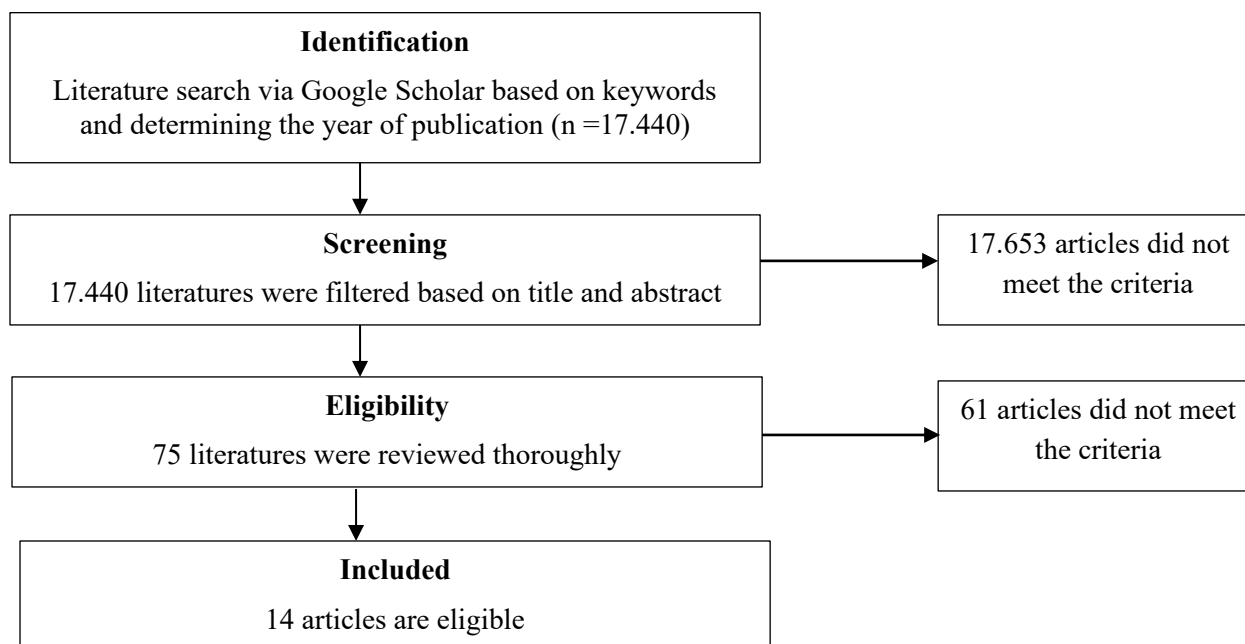


Figure 1. PRISMA Flow Diagram

RESULTS

Based on the search results through Google Scholar, then a selection was carried out according to the criteria determined in the study, so that 14 literatures were obtained which were used as research references to analyze how the challenges and strategies for fulfilling specialist and subspecialist doctors to improve referral services at the Hospital. The selected literature by researchers analyzed in the systematic review study are as follows (Table 1):

Table 1. Literature Review Results

No	Title	Writer	Method	Review Results
1.	Study of Problem Formulation and Strategic Issues of North Toraja Regency 2021-2026	Yohanis Rerung Sau, 2021 [28]	Qualitative studies case	One of the problems faced in health development is characterized by the limited availability of medical personnel, especially in remote areas and the lack of commitment among stakeholders regarding health development.
2.	Analysis Non-PNS Health Worker Policy in Community Health Centers	Sri Mardikani Nugraha, Christa Gumanti Manik, Amir Su'udi, 2020 [23]	Document and literature review	<ol style="list-style-type: none"> Local governments have a crucial role in planning and ensuring the availability of health workers in health facilities. One of the causes of the uneven distribution of health workers is the synergy between the Health Office and various parties involved in personnel planning in health facilities. Regulations related to non-PNS personnel are still unclear and inconsistent. The 2023 ASN Law has simplified the status of personnel in government agencies, where all employees must now have ASN status, either as PNS or PPPK. This means that there are no more employees with contract or honorary status in government agencies.

No	Title	Writer	Method	Review Results
				<p>3. The shortage of health workers can be met with a special team-based health worker assignment policy. Special assignments can be an alternative solution when the recruitment of PNS or PPPK cannot meet the need for personnel immediately.</p> <p>4. BLUD contract regulations provide flexibility for health facilities to meet the need for health human resources.</p>
3.	Dynamics of Health Workforce Placement Policy Implementation in Remote Areas: Challenges and Field Realities	Wilem Reinhart Ridolof Pomeo, Eko Winarti, 2024 [25]	Systematic literature review	<p>The process of placing health workers in remote areas is faced with various challenges, including:</p> <ul style="list-style-type: none"> • limited health facilities, infrastructure and accessibility and lack of incentives and health infrastructure • lack of quality human resources. In addition, the lack of training and competency development is an inhibiting factor in efforts to improve the quality of health services • lack of government support, both in terms of budget and policy, and lack of accountability in resource management are major obstacles in the health worker placement program • local communities who do not understand the importance of health often hinder efforts to place health workers and provide health education • poor coordination between various related parties leads to overlapping programs and inefficient resource management. <p>An integrated approach involving all stakeholders, as well as increased investment in infrastructure, human resources, and public health programs, are key steps to address the challenges of providing health services in remote areas. Several strategic steps in remote areas have been taken through various means, such as increasing access to education and training for health workers, providing incentives, and mandatory assignment programs. In addition, periodic evaluations are carried out to ensure the effectiveness of these programs.</p>
4.	Challenges and Strategic Issues of Human Resources Health in Health Centers in Indonesia: A Study Literature	Ranti Safa Marwa, 2021 [21]	Literature review	<p>The shortage of health workers in health centers is caused by several factors, namely the imbalance between the number of graduates and the needs in the field, as well as the uneven distribution of health workers due to the lack of clear rules on placement and incentives. To overcome this problem, a comprehensive policy is needed that regulates the placement, provision of incentives, and career development of health workers.</p>
5.	Adaptation Policy for Indonesian Citizen Specialist Doctors Who Graduated Abroad in Health Service Facilities	Siti Yuniarti, Ede Surya Darmawan, 2023 [29]	Literature review and library research	<p>The adaptation program for Indonesian LLN specialist doctors is a government effort to meet the needs of specialist doctors. However, this program faces various challenges, especially the differences in medical education systems between Indonesia and abroad which complicate the competency assessment process. Abroad, education is more centralized in hospitals, while in Indonesia, education is more centralized in universities. In addition, administrative constraints and limited resources are also obstacles. Therefore, strong cooperation is needed between the central and regional governments to overcome these various obstacles and ensure the success of the program.</p>

No	Title	Writer	Method	Review Results
6.	Overview of the Policy for Fulfilling the Needs for Specialist Doctors in Indonesia	Rizza Norta Villeny Rosita Dewi, Puput Oktamianti, Dian Muliawati, 2023 [6]	Literature review	The PGDS program, resident assignments, and adaptation of Indonesian specialist doctors who graduated abroad are short-term solutions to meet the need for specialist doctors. On the other hand, the PDS-DGS Cost Assistance program is designed to produce specialist doctors who can serve for a longer period of time, especially for civil servant doctors. The service period of non-civil servant doctors who are funded through this program is generally limited to the post-education service period.
7.	Literature Review: Increasing the Number and Utilization of Health Workers in Indonesia	Alwi Safriadi Lubis, Alya Zuhrah, Maharani Harahap, Netha Gloria Br Ginting, Shofiah Amini Hutajulu, Dewi Agustina, 2023 [19]	Literature Review	The government has implemented various programs to address the shortage of health workers. The Nusantara Sehat Program, the utilization of domestically-trained specialist doctors, and the specialist doctor education scholarship program are some examples of efforts made to ensure the availability of sufficient health workers in all regions, especially in hard-to-reach areas.
8	Services at Eka Hospital Pekanbaru	Deny, Machasin, Jahrizal, 2020 [5]	Qualitative research	The strategy for developing human resources in the cardiovascular field that is implemented includes several aspects, namely cooperation with educational centers to obtain experts, providing specialist and subspecialist education scholarships, developing internal training programs, and employee retention programs based on incentive systems. The main objective of this strategy is to build a strong and sustainable cardiovascular team.
9.	Distribution of Health Workers in West Kalimantan Using the Ward Method	Endah Saraswi, Hendra Perdana, Anis Fakhrunnisa, 2024 [27]	Study quantitative with method analysis cluster	To improve public health and life expectancy, we need to prioritize increasing the number of health workers, especially in the regions. In addition, efforts to improve the quality of training and health facilities must also be made so that each sub-district can enjoy adequate health services.
10.	Best Practices for Brain and Nerve Service Management as Core Business at RSOMH Bukittinggi	Susi Masfar, Delfia Tanjung Sari, 2023 [22]	Qualitative approach (in-depth interview method)	With a focus on improving the quality of service, RSOMH Bukittinggi will make various efforts such as increasing the number of specialist doctors, developing training programs, and collaborating with educational institutions. The goal is to provide the best care for patients and become a referral center in the fields of neurology, neurosurgery, and medical rehabilitation.
11.	Fulfillment of Health Workers in Indonesia Through PPPK Recruitment at the Ministry of Healt	Dianita Rahmawati, Eko Sakapurnama, 2023 [26]	Study descriptive	The government has implemented a PPPK recruitment system for health workers that is more beneficial for non-ASN employees. With this closed system, their chances of becoming PPPK are greater. This step is a strategic effort to meet the needs of health workers throughout Indonesia and provide certainty of employment status for non-ASN health workers.
12.	Implementation of Human Resource Management in Health Facilities: A Literature Review	Jacqueline Makanoneng, Sri Sundari, Marisi Pakpahan, 2024 [20]	Literature review	In situations where there is a mismatch in numbers and competencies, a redistribution policy can be implemented. Thus, health workers can be placed in areas of need and given appropriate training to improve the quality of service.
13.	Number and Need for Human Resources for	Arman Rifat Lette, 2020 [18]	Study Qualitative with	The WKDS program and doctor internship are effective solutions to overcome the shortage of specialist doctors in hospitals, both for basic and supporting services. The

No	Title	Writer	Method	Review Results
	Health in Kupang City Health Facilities		approach Descriptive	provincial government and related agencies need to actively monitor and meet the needs of specialist doctors in health facilities by providing educational scholarships and distributing human health resources evenly.
14.	Academic Health System Policy in Efforts to Fulfill Health Workforce Needs in Indonesia: Systematic Review	Dewi Tri Nugraheni, Wachyu Sulistiadi 2023 [24]	Systematic Review	To achieve a fair and equitable distribution of health workers, Indonesia needs to consider implementing the Academic Health System (AHS). However, this requires full support from the central and regional governments, as well as policies that support collaboration between universities and teaching hospitals.

DISCUSSION

The success of referral service transformation through strengthening the referral hospital network for priority diseases: Cancer, Heart, Stroke, Urology and Maternal and Child Health in Indonesia is highly dependent on the availability of specialist and subspecialist doctors, both in terms of type, quantity and quality. The imbalance in the distribution of specialist doctors in Indonesia has created a gap in access to quality health services, especially for people in remote and less developed areas. An in-depth analysis of 14 literatures shows that efforts to increase the availability of specialist doctors in hospitals are faced with various multidimensional challenges. Researchers attempt to group several main aspects that contribute to the fulfillment of specialist doctors and examine various relevant solutions. The aspects in question include regulatory aspects, budget allocation aspects, human resource management aspects, infrastructure availability aspects, and monitoring and evaluation mechanism aspects.

Regulatory Aspects

The regulatory aspect plays a very crucial role in efforts to meet the needs of specialist doctors. The applicable regulations directly affect the number, distribution, and quality of specialist and subspecialist doctor services in hospitals. Law Number 17 of 2023 emphasizes that the government is responsible for meeting the needs of Medical Personnel and Health Personnel related to the number, type, competence, and even distribution to ensure the sustainability of health development.

According to Government Regulation Number 28 of 2024, hospital leaders are fully responsible for meeting the needs of health human resources. The number and qualifications of health workers must be adjusted to the workload and service capacity of the hospital. The process of appointing health workers is carried out by the owner or director of the hospital. On the other hand, Law 20 of 2023 concerning the State Civil Apparatus prohibits the appointment of non-ASN employees to become ASN in conflict with the urgent need for specialist doctors. The long recruitment process for PNS and PPPK makes it difficult to immediately meet the shortage of medical personnel. Analysis of various literature shows inconsistencies in the implementation of policies governing the status and management of non-ASN personnel. Seeing the dynamics of the need for specialist doctors, the government needs to implement more flexible policies. One solution offered is through a PPPK recruitment mechanism with a closed system that gives preference to non-ASN workers. In addition, the government also opens opportunities for specialist doctors with certain qualifications to become civil servants with looser age requirements.

Success in meeting the need for specialist doctors and subspecialists cannot be separated from the important role of the Central Government, Ministries and related institutions have a great responsibility in formulating policies, allocating budgets, and coordinating various efforts to increase the number and distribution of specialist doctors throughout Indonesia. Therefore, cross-sectoral coordination is the key to success in implementing adequate fulfillment of specialist doctors and subspecialists, both at the central and regional levels. It is hoped that with strong coordination and cooperation among all stakeholders, it will strengthen the commitment to formulating strategic policies and joint commitments related to efforts to fulfill and equalize quality and comprehensive specialist doctors and subspecialists. Lack of synergy in communication and coordination between various stakeholders can cause various problems, such as program duplication, waste of resources, and imbalance in the distribution of health services. This could ultimately hinder efforts to improve the quality and accessibility of health services for the community.

Budget Aspect

Efforts to fulfill specialist and subspecialist doctors based on planning results are certainly greatly influenced by the fiscal capacity of the Regional Government, especially in relation to the amount of employee spending. Often the large need for health human resources is not balanced by fiscal capacity, plus the amount of employee spending

has exceeded the maximum limit of 30%. In accordance with the HKPD Law, local governments are required to limit the budget allocation for employee salaries to no more than 30% of the total regional budget. Data from the International Monetary Fund (IMF) shows that similar practices are also applied in many developing countries [7]. Based on IMF data, Indonesia is among the three developing countries with the highest proportion of employee spending, which is around 50% of total spending. This condition indicates that limiting the proportion of employee spending in accordance with the provisions of the HKPD Law can have implications for the availability of specialist and subspecialist doctors in hospitals. Budget constraints also often have an impact on the unavailability of incentives for specialist and subspecialist doctors, especially in remote areas. Providing incentives is one of the effective strategies to attract and retain specialist doctors in remote areas. Through competitive incentives, it is expected to overcome the disparity in the distribution of health workers and improve the quality of health services in the area. Incentive policies are one of the important instruments in efforts to equalize the distribution of specialist doctors. In addition to incentives, it is also necessary to regulate the term of service, as well as competency development programs to support the long-term careers of specialist doctors in remote areas.

Human Resources Aspect

The problem of the shortage of specialist doctors in hospitals cannot be separated from the mismatch between the number of specialist doctor graduates and the real needs in the field. This fact shows that the number and type of specialist doctors produced by educational institutions do not match the profile of health workers needed by the national health system. There needs to be a balance between the number of specialist doctor graduates and the needs in the field. In addition, the quality of specialist medical education must continue to be maintained to produce professional and competent medical personnel. The target ratio of specialist doctors per 1,000 population that has been set is not in line with the current number of specialist doctor graduates. There is a significant gap between the need and supply of specialist doctors. Another obstacle is that the specialist program education takes four to six years. A review of 14 literature shows that there are various alternative solutions that can be applied to overcome the problem of the shortage of specialist medical personnel in hospitals, including:

Increasing the accessibility of specialist doctor education and training requires a strong commitment from various parties, including the central and regional governments, universities, and teaching hospitals. Scholarship schemes and the development of hospital-based academic health systems are strategic steps to achieve this goal

The implementation of the Specialist Doctor Empowerment Program and the Specialist Doctor Compulsory Work Program aims to redistribute specialist medical personnel to areas in need. This program is expected to increase specialist doctors' awareness and empathy towards the socio-cultural conditions of the community, so that they can provide more relevant and sustainable health services.

Provision and utilization of Indonesian citizen specialist doctors who practice abroad to return to their homeland. This program is expected to overcome the shortage of specialist medical personnel, especially in areas that are difficult to reach.

Although several of these strategies have been implemented, their implementation often faces several obstacles including lack of incentives, limited facilities and socio-cultural conditions such as rejection or distrust of the community towards health programs can hinder efforts to place health workers and implement outreach activities, so that community access to health services is limited. Strong cultural and traditional diversity can cause communities in remote areas to be reluctant to accept modern health practices, thus hindering efforts to improve community health.

Infrastructure, Access and Facilities Aspects

The availability of adequate health infrastructure, access and facilities are determining factors in attracting and retaining specialist doctors, especially in less developed areas. The limitations of these facilities are often the main inhibiting factor in efforts to equalize health services. The reluctance of specialist doctors to work in remote areas has implications for the uneven distribution of human health resources, thus impacting the quality of health services in the region. Previous studies show a significant gap in access to health services between urban and rural areas [10]. Geographical and demographic conditions in eastern Indonesia, such as limited health facilities and low population density, make it difficult to attract doctors and other health workers [12].

Comprehensive health infrastructure, including hospitals equipped with modern medical equipment, adequate road networks, and information technology support, is a key factor in attracting and retaining specialist medical personnel. This will have a positive impact on improving the quality of health services and public accessibility to health services. In addition to the availability of health facilities, the accessibility aspect must also be a primary consideration in the placement of specialist doctors. Travel distance, the availability of safe and comfortable transportation, and the availability of adequate accommodation are important aspects that must be considered to ensure an even distribution of medical personnel. Finally, aspects of infrastructure such as the availability of sophisticated medical equipment and in accordance with the needs of specialist health services are

very important to support clinical practice, the availability of complete and quality medicines is very important to provide optimal health services, and an integrated health information system can assist in patient data management, service coordination, and decision making.

Supervision and evaluation aspects

Systematic supervision and evaluation are essential components in ensuring the successful implementation of the policy of fulfilling specialist and subspecialist doctors. Continuous evaluation aims to identify potential improvements and strengthen synergy between various stakeholders in order to achieve common goals. The absence of comprehensive supervision and evaluation of policy implementation can trigger deviations in the use of resources and reduce the accountability of state administrators (Pomeo & Winarti, 2024). Active community participation in the evaluation process is crucial to ensure the success of the health worker placement program in remote areas and improve the quality of health services. By involving the community, the government can design more relevant and effective health policies and programs, because they have directly considered the needs and aspirations of the community.

CONCLUSION

Overall, various challenges that affect the fulfillment of specialist and subspecialist doctors in Hospitals are the lack of coordination/collaboration and commitment/support between stakeholders such as the Central and Regional Governments, Health Offices, Agencies in charge of employee planning and budgeting, limited budget and incentives for medical and health workers, regulatory gaps, limited access, infrastructure and facilities especially in remote areas, less than optimal evaluation and ongoing supervision, significant disparities between the types and number of health workers produced by educational institutions and the actual needs of health workers in various regions, especially in less developed areas and the inequality in the distribution of specialist medical workers also occurs in various regions. However, other factors such as lack of understanding and support from the local community, lack of quality human resources, mismatch between numbers and competencies/qualifications also affect the fulfillment of specialist and subspecialist doctors. The involvement of all stakeholders, from the government, health institutions, educational institutions to the community, is very crucial in efforts to increase the number of specialist and subspecialist doctors

SUGGESTION

Based on the results of this study, it is recommended that the central government, local governments, and all related parties pay attention to aspects of regulation, budget, human resources, infrastructure, access and facilities, as well as aspects of supervision and evaluation in fulfilling specialist and subspecialist doctors in hospitals. The interdependence between the five aspects indicates that a holistic approach is needed in an effort to increase the availability of specialist and subspecialist doctors in hospitals.

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