

Referral Acceptance System For Patients With Non-Communicable Diseases Of The Elderly In The Tough Doctor Program To *Rsud Haji Abdoel Madjid Batoe*

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Abstract

Non-communicable diseases are chronic illnesses such as hypertension, diabetes mellitus, heart disease, and stroke. This study aims to analyze the challenges in the referral acceptance system for elderly NCD patients within the Tangguh Doctor Program at RSUD Haji Abdoel Madjid Batoe. This qualitative research was conducted at RSUD Haji Abdoel Madjid Batoe. The informants consisted of the Acting Head of the Batang Hari District Health Office, Sub-coordinator of Primary Health Services, representatives from BPJSKesehatan Batang Hari, representatives from RSUD Haji Abdoel Madjid Batoe, representatives from Bapperida of Batang Hari Regency, elderly NCD patients, Doctors (Tangguh Doctor Team), and staff of the TPPRJ at RSUD Haji Abdoel Madjid Batoe. Data collection used document review, in-depth interviews, and FGDs. The research findings indicate that each region has 1 Tangguh Doctor Team. The funding (Money) comes from APBD. Materials include stationery, medical devices, proof sheets and visit logbooks, visit registration books, and referral sheets. There is an existing SOP (Method). The equipment (Machine) includes a vehicle, but laptops/tablets and the Integrated Referral Information System (SISRUTE) are not yet available. The target (Market) is elderly patients with NCDs. The process involves the doctor determining the need for referral, the team taking the patient to the primary health center (puskesmas), and ensuring the patient receives care. The system's output is suboptimal, impacting efficiency and effectiveness. The primary cause is the team's lack of SISRUTE integration with P-Care for printing referrals. The main recommendation is the development of SISRUTE for Tangguh Doctors. Referral acceptance to RSUD Hamba is suboptimal due to the absence of SISRUTE-P-Care integration. It is suggested to develop a digital referral application to eliminate the need for patients to visit the primary health center for referral letters. This application should be connected with P-Care BPJS and SISRUTE.

Keywords: System, Referral, Non-Communicable Diseases, Elderly

Abstrak

Penyakit Tidak Menular (PTM) merupakan penyakit yang tidak dapat ditularkan dari satu orang ke orang lain. Dikenal sebagai penyakit kronis, contohnya seperti hipertensi, diabetes melitus, penyakit jantung, dan stroke. Tujuan Penelitian ini adalah untuk menganalisis apa yang menjadi kendala belum optimalnya sistem penerimaan rujukan pasien PTM lansia dalam Program Dokter Tangguh ke RSUD Haji Abdoel Madjid Batoe. Penelitian ini adalah penelitian kualitatif yang dilakukan di RSUD Haji Abdoel Madjid Batoe. Informan terdiri dari Plt. Kadis Kesehatan Batang Hari, Subkoordinator Yanes Primer, Perwakilan BPJS Kesehatan Cab. Batang Hari, Perwakilan RSUD Haji Abdoel Madjid Batoe, Perwakilan Bapperida Kabupaten Batang Hari, Pasien PTM lansia, Dokter (Tim Dokter Tangguh), Petugas TPPRJ RSUD Haji Abdoel Madjid Batoe. Pengumpulan data menggunakan telaah dokumen, wawancara mendalam dan FGD. Hasil penelitian, *Man* setiap wilayah 1 Tim Dokter Tangguh. *Money* bersumber dari APBD. *Material*: ATK, alkes, lembar bukti dan buku catatan kunjungan, buku register kunjungan dan lembar rujukan. *Method*: terdapat SOP. *Machine*: mobil, namun Laptop/Tablet dan SISRUTE belum tersedia. *Market*: pasien penderita PTM lansia. *Proses*: dokter menentukan perlu rujuk, tim antar ke puskesmas, pastikan pasien tertangani. *Output* sistem belum optimal, berdampak pada efisiensi dan efektivitas. Penyebabnya adalah tim tidak memiliki SISRUTE terintegrasi dengan P-Care untuk mencetak rujukan. Rekomendasi utama adalah pengembangan SISRUTE untuk Dokter Tangguh.

Penerimaan rujukan ke RSUD Hamba belum optimal karena kurangnya integrasi SISRUTE dengan P-Care. Disarankan pengembangan aplikasi rujukan digital agar pasien tidak perlu ke puskesmas untuk mendapatkan surat rujukan. Aplikasi ini harus terhubung dengan P-Care BPJS dan SISRUTE.

Kata Kunci: Sistem, Rujukan, Penyakit Tidak Menular, Lansia

Introduction

Non-communicable diseases (NCDs) are diseases that cannot be transmitted from one person to another. These diseases are also known as chronic diseases because they develop over a long period of time. Non-communicable diseases (NCDs) such as hypertension, diabetes mellitus, heart disease, and stroke have become a significant global health burden. According to the *World Health Organization* (WHO), NCDs are the cause of death for around 41 million people each year, which is equivalent to 74% of all deaths in the world. Approximately 17 million people die before the age of 70 from NCDs and premature mortality in *low- and middle-income countries* is 86%. Cardiovascular disease is a non-communicable disease that causes the highest number of deaths, about 17.9 million deaths each year, followed by cancer with 9.3 million deaths, chronic respiratory disease with 4.1 million deaths and diabetes with about 2 million deaths including Chronic Kidney Disease (CKD) due to diabetes. These four diseases cause about 80% of premature deaths due to NCDs (Directorate of P2PTM, 2024).

In Indonesia, NCDs are also a major health problem, especially in the elderly. The prevalence of NCDs in the elderly continues to increase, with cancer rising from 1.4% to 1.8%, stroke prevalence rising from 7% to 10.9% and chronic kidney disease rising from 2% to 3.8%. Based on blood sugar examination, diabetes mellitus rose from 6.9% to 8.5% and blood pressure measurement results, hypertension rose from 25.8% to 34.1% (Directorate of P2PTM, 2024).

Batanghari Regency, Jambi Province, is one of the regions that faces serious challenges in handling NCDs, especially in the elderly.

Based on data from the Batanghari District Health Office, the prevalence of hypertension and diabetes mellitus in the elderly in this area is high, with the incidence rate increasing every year. In 2022, it is known that acute upper respiratory infections ranked first with a percentage of 29.51%, followed by hypertension 25.48%, esophageal, stomach and intestinal diseases 14.79%, influenza and pneumonia 6.94, diabetes mellitus 6.05%, dermatitis 5.96%, soft tissue disorders 4.49%, general signs and symptoms 3.85%, diarrhea 1.75% and finally rheumatoid arthritis 1.18% (Jambi Provincial Health Office, 2022). This problem is caused by several factors, including: long distance of residence, low public awareness of health, and the assumption that medical treatment is expensive. As a result, people are reluctant to utilize health facilities such as *Puskesmas*/community health service or hospitals. Therefore, a comprehensive and integrated health service system is needed.

One of the local government's efforts to improve access and quality of health services, especially for NCD patients, is through the *Tangguh/tough Doctor Program*. This program involves Primary Health Facilities (*Puskesmas*) and Regional General Hospitals (RSUD) in the patient referral process. By 2023, the Tangguh Doctors team had helped more than 21 thousand people who needed health services. This resulted in an increase in visits to *puskesmas* to more than 66 thousand and visits to regional public hospitals to more than 74 thousand in the same year (Tempo.co, 2024). The implementation of the referral system in the Tangguh Doctors Program still faces various obstacles. Some doctors or nurses do not continue their contracts, even though their labor is still very much needed. In addition,

public understanding of the importance of timely referrals is still low. These conditions certainly hamper the effectiveness of the program and potentially reduce the quality of health services.

RSUD Haji Abdoel Madjid Batoe, as the main referral hospital in Batanghari District, plays a crucial role in the management of elderly NCD patients. However, primary data from the initial survey showed that the referral process is often not optimal due to several obstacles. These include a lack of accurate information on specialist schedules, difficulty accessing *mobile JKN* for elderly patients for *online* registration, and patient non-compliance with scheduled visits. Secondary data for 2023 in Batanghari showed high rates of hypertension (52,190 people) and diabetes mellitus (4,214 people), which further emphasized the importance of optimizing the referral system.

From the background description, the problem formulations in this study are: What are the obstacles to the suboptimal system of receiving referrals of elderly non-communicable disease patients in the Tangguh Doctor Program to RSUD Haji Abdoel Madjid Batoe?

Research Objective

To analyze what are the obstacles to the suboptimal system of receiving referrals of patients with non-communicable diseases of the elderly in the Tangguh Doctor Program at RSUD Haji Abdoel Madjid Batoe.

Research Method

This research uses a qualitative method. This research will focus on the main object, namely all parties involved in the Resilient Doctor Program. the subjects in this study are Plt. Batang Hari Health Department, Primary Health Care Subcoordinator, BPJS Health Cab. Batang Hari, Representative of RSUD Haji Abdoel Madjid Batoe, Representative of Bapperida Batang Hari Regency, elderly NCD patients, Doctors (Tangguh Doctor Team), TPPRJ Officers of RSUD Haji Abdoel Madjid Batoe. Data collection used interviews, document review, surveys and questionnaires.

The data obtained was then analyzed using triangulation techniques to validate the data.

Research Results

1. Input Patient Referral Acceptance for Elderly NCD Patients in the *Tangguh Doctor Program* at *RSUD Haji Abdoel Madjid Batoe*

a. Man

The results of interviews with key informants, obtained results regarding the *man* in the Tangguh doctor program can be seen below:

"For man, each working area has one Tangguh Doctor Team consisting of 1 Doctor, 1 Nurse and 1 Driver with a total of 30 people. And for more details, it can be seen in the Tangguh doctor program innovation document."

Based on document review, it can be explained that each work area has one Tangguh Doctor Team consisting of 1 Doctor, 1 Nurse and 1 Driver with a total of 30 people.

b. Money

Based on the results of interviews regarding *money* for receiving referrals of elderly NCD patients in the Tangguh doctor program at RSUD Haji Abdoel Madjid, it can be seen below:

"The financing of the Tangguh Doctor Service is charged to the Regional Revenue Expenditure Budget (APBD) of Batang Hari Regency. For more details, please refer to the Tangguh doctor program innovation document. However, the recitation is unlikely to be published because it is a private matter."

Based on the results of the document review of the Innovation of Mobile Health Services by Resilient Doctors in the Batang Hari Regency Area, Jambi Province, it can be explained regarding the financing of Mobile Health Services by Resilient Doctors, as follows:

- 1) Financing for mobile health services by resilient doctors is borne by the Batang Hari Regency Regional Revenue Expenditure Budget (APBD);
- 2) Financing of Mobile Health Services by Resilient Doctors is outlined in the SKPD Budget Work Plan;

- 3) Financing of Mobile Health Services by Resilient Doctors consists of operational expenditure and capital expenditure;
- 4) Operational expenditure includes all expenditure including personnel expenditure, expenditure on goods and services, and other expenditure that is useful for the activities of the Mobile Health Service Team by Resilient Doctors to carry out their duties and functions;
- 5) Capital expenditures include all expenditures of the Mobile Health Services Team by Resilient Doctors for the acquisition of fixed assets and other assets that provide benefits for more than 12 (twelve) months to be used in Mobile Health Services activities including expenditures for equipment and machinery, and other fixed asset expenditures.

c. Material

Based on interviews and document review, the Standard Operating Procedure (SOP) for Mobile Health Services by Resilient Doctors can be seen below:

1) Mobile Health Program

"Tension meter, blood sugar, cholesterol and uric acid checker, patient register book, activity plan book, and essential medicines."

Results of document review:

- a) Office stationery;
- b) Simple health examination equipment;
- c) Evidence sheets and home/family visit logbooks;

2) Procedure for referring patients

Informant P1:

"Having a BPJS card where to go to the hospital you must first ask for a referral to the puskesmas."

Informants P1 and P3:

"By showing a referral letter from the puskesmas, registering via online, via whatsapp, or via mobile JKN."

Results of document review:

Referral sheet (referral letter)

d. Method

Based on the results of interviews and document review, the Standard Operating Procedure (SOP) for Mobile Health Services by Resilient Doctors is that the Resilient Doctor Team visits patients to homes either alone or accompanied by officers from the village to

provide health services and fill in proof of home visits as reporting. Furthermore, the procedure for referring patients by directing patients to the Puskesmas first for re-examination and obtaining a referral letter so that they can be referred to RSUD Haji Abdoel Madjid Batoe.

e. Machine

Based on the results of interviews with informant 2, the Mobile Health *Machine* by Tangguh Doctors can be seen in the following table:

"Resilient official car, tension meter, blood sugar, cholesterol and uric acid checker, patient register book, activity plan book, and essential medicines."

From the results above, it can be seen that transportation equipment for Tangguh doctors is available, in the form of a car unit. However, there is no laptop for recording and reporting, nor for accessing SIMPUS, E-RM and P-Care. An Integrated Referral System for the Tangguh Doctors is also not yet in place.

f. Market

Based on the results of interviews regarding the *market for mobile health* by resilient doctors, it can be explained that the market for the Resilient Doctor Program is the poor, the elderly, people with disabilities, people after hospitalization, community victims of epidemics / LGBT, health escorts at community activities and emergency calls.

2. Patient Referral Process for Elderly NCD Patients in the Resilient Doctor Program at RSUD Haji Abdoel Madjid Batoe

a. Mobile Health Program

Based on the document review of the Standard Operating Procedure (SOP) for Mobile Health Services by Resilient Doctors, it can be seen as follows:

- 1) Officers come to the homes of patients who have health problems
- 2) Say greetings and introduce the name and origin of the officer
- 3) Conveying the purpose of the home visit according to the activities to be carried out.
- 4) Ask permission for the family's time and willingness to carry out activities.

- 5) Make light communication with the family to break the ice before starting the activity.
- 6) Start the activities in the home visit according to the activity SOP.
- 7) Ensure that the entire activity process has been carried out correctly.
- 8) Asking the Head of Family or representative to fill in the home visit evidence.
- 9) Thanking the family for their cooperation and greeting them before leaving the residence.

b. Referral Service

In Batang Hari Regent Regulation No. 41 of 2022, the Tangguh Doctor Team refers patients who require further treatment to the Puskesmas in its working area. The patient referral flow is implemented as follows:

- 1) The respite doctor determines the diagnosis that requires the patient to be referred;
- 2) Based on the diagnosis, the Resilient Doctor Team will transport the patient to the Puskesmas;
- 3) In the event that the patient is in a condition where it is not possible to take the patient with the facilities owned by the Resilient Doctor Team, the Resilient Doctor Team contacts the Puskesmas to pick up the patient as soon as possible.
- 4) The Tangguh Medical Team ensures that the referral patient receives the necessary medical treatment. Patients with emergency conditions, based on the doctor's diagnosis, can be referred directly to the Haji Abdoel Madjid Batoe Regional General Hospital.

3. Output of Patient Referral Receipt for Elderly NCD Patients in the Tangguh Doctor Program at RSUD Haji Abdoel Madjid Batoe

Based on the survey results, it can be seen that the percentage of targeted referrals is low (43%), the waiting time for referrals is low (39%), the level of patient satisfaction is high (46%), the coverage of referrals in remote areas is limited (46%), the referral process time

is long (43%), the operational cost of referrals is inefficient (32%) and the use of resources is inefficient (50%).

4. Identification of Problems in the System and Impact on Acceptance of Patient Referrals for Elderly NCD Patients in the Dokter Tangguh Program to RSUD Haji Abdoel Madjid Batoe

The first problem is that the percentage of targeted referrals is still low. One of the main problems identified is the requirement for patients to first obtain a referral from a puskesmas before they can be referred to a higher health facility.

This issue has several significant impacts, including: Potential increase in untargeted referrals, reluctance of patients to be referred, reduction in targeting accuracy of referrals.

The second problem is that waiting times for referrals are still high. One of the main problems identified is the difficulty of patients in managing the time to seek treatment at the puskesmas or hospital. This difficulty is caused by several factors, including long travel distances and reluctance to face long queues when seeing a doctor. This problem has a significant impact on extending the overall waiting time for referrals.

The third problem is that patient satisfaction with the current referral system is low. One of the main problems identified is the requirement for patients to be referred first to a puskesmas before they can be referred to a higher health facility. This issue has a significant impact on the cost and time burden for patients.

The fourth problem is that referral coverage in remote areas is still limited. One of the main problems identified is the long distance between the patient's home and the puskesmas. This will result in patients from remote areas being reluctant to go to the puskesmas in the first place.

The fifth problem is that the current referral process time is still long. One of the main problems identified is the uncertainty in referrals at puskesmas, where patients sometimes do not get a referral even after arriving there. This results in patients having to wait longer to get the referral they need.

The sixth issue is that the current operational costs of referrals are inefficient. One of the main problems identified is the additional transportation burden (cost) for patients because they have to go to the puskesmas first. This issue has an impact on systemic operational cost inefficiencies for patients.

The seventh issue is the inefficient use of resources in the current referral system. One of the main problems identified is the requirement for patients to have a re-examination at the puskesmas after getting a referral from another health facility. This issue has an impact on cost wastage due to unnecessary re-examination.

5. Causes of Problems in the System of Receiving Referrals of Patients with NCDs for the Elderly in the Tangguh Doctor Program to RSUD Haji Abdoel Madjid Batoe

Based on the results of the study, it can be explained that the causes of ineffectiveness and inefficiency of the system for receiving referrals of patients with NCDs for the elderly in the Tangguh Doctor Program to RSUD Haji Abdoel Madjid Batoe are as follows:

- a. *Method*: Patients must go to the Puskesmas first in order to get a referral letter to the RSUD. So the patient must incur transportation costs to go to the Puskesmas first. This necessity adds a burden to the patient because:
 - 1) Requires transportation costs to go to the Puskesmas.
 - 2) Requires re-examination at the Puskesmas, resulting in repeated examinations (Tangguh Doctor Team → Puskesmas → RSUD).
 - 3) Potentially not getting a referral letter if there is a difference in the assessment of the patient's condition between the Tangguh Medical Team and the Puskesmas, so that the patient is only treated at the Puskesmas.
 - 4) This procedure is highly inefficient as it requires additional time and resources from patients and health workers, and can reduce the accuracy of the referral target.

b. *Machine*: This is due to the fact that the team does not have adequate Laptop/Tablet facilities to access the system, and there is no budget for the procurement of Laptop/Tablet (*Machine*). Then the Tangguh Doctor Team also does not yet have access to the BPJS Pcare Puskesmas and SISRUTE systems.

6. Recommendations for the Patient Referral System for Elderly NCD Patients in the Tangguh Doctor Program to RSUD Haji Abdoel Madjid Batoe

Broadly speaking, all *stakeholders* agree that the Tangguh Doctor program is a good innovation to bring health services closer to the community. To maximize the effectiveness of this program, especially in terms of patient referrals, it is necessary:

- a. Development of an integrated referral system (Application) that is *bridging* with BPJS Health E-records and P-Care, making it easier for resilient doctors to refer patients,
- b. The system must include a list of services at RSUD and Integrated Elderly Services,
- c. In order for Resilient Doctors to refer patients, doctors who are members of the team must be registered with H.F.I.S.

Discussion

1. Input of Patient Referral Receipt for Elderly NCD Patients in the Resilient Doctor Program at RSUD Haji Abdoel Madjid Batoe

a. *Man*

According to Siti Hapsah Pahira (2023), the potential of *man* in business organizations is the main asset that acts as non-physical and non-financial capital. This capital can be developed into real strengths, both tangible and intangible, that are essential to the sustainability of the organization.

Each Tangguh Doctor team in a working area consists of a doctor, a nurse, and a driver. In total, there are 30 people in the program. A complete team like this is ideal because the doctor leads and is medically responsible, the nurse assists in treatment, and the driver ensures the team can move to reach patients.

A potential problem is that one of the *men* in the team is on leave or unable to come to work. This will certainly make it difficult for

the team. If the *driver* is absent, his role can be replaced by a nurse, if the nurse is absent it can still be *handled* as a whole by the doctor. But what if the doctor is on leave, automatically hampering the service. So arrangements are needed regarding replacement doctors when the doctor is absent.

b. Money

Money is funds allocated for the operation of the health service system, including the cost of labor salaries, procurement of drugs and medical equipment, maintenance of facilities, and others (Fardiansyah et al., 2022).

The funds to run the Tangguh Doctor program come from the Batang Hari Regency Regional Budget (APBD). This budget is included in the health department's budget work plan, and is divided into two types of expenditure: operational expenditure and capital expenditure.

Relying on the APBD to fund health programs such as the Tangguh Doctors is common in Indonesia. The government does have a responsibility to provide health services to the community, and one way to do this is by funding health programs like this.

However, there are a few things to note regarding the financing of this program. Since the funding comes from the APBD, this program can be affected if the regional financial condition is not good. It is important to plan the budget well, prioritize the health budget, and if possible look for other sources of funds so that this program remains stable in the long term, such as attracting foreign and local investors, such as BANK, Large Pharmaceutical Companies and Industrial Companies. Fund allocation must also be transparent and accountable. The planning, use, and financial reports of the program must be clear and accessible to the public. Financial audits by independent parties are also important to ensure that program money is used properly and effectively.

According to Ompusunggu et. al (2023), financial management has a very important role for companies in managing financial aspects. With effective cost management, prudent tax planning, making the right investment decisions, good management of

stakeholder relationships, and a good understanding of the relationship between financial decisions and company performance and value, companies can achieve their financial goals and improve company performance and value in the long run.

c. Materials

Materials are medicines, medical consumables, medical equipment, and other supplies needed in the health care process (Fardiansyah et al., 2022).

Materials for the Dokter Tangguh program are mentioned to include office stationery, simple health examination equipment, proof sheets and visit record books, as well as register books and referral sheets. These are basic supplies that are essential for running mobile health services.

Office stationery such as pens, paper, and others are certainly needed for administration and record keeping. Simple health examination equipment are the basic medical tools that doctors and nurses use to examine patients. Evidence sheets and visit logbooks are used to record the results of home visits and services provided. Register books and referral sheets are used to record and manage the process of referring patients to higher health facilities (Puskesmas to RSUD Haji Abdoel Madij Batoe).

These stationery and forms are consumables that must always be available. It is important to plan well for the need of these materials, how to purchase them, and how to distribute them to the teams of Resilient Doctors. It may also be worth considering the use of electronic forms or electronic medical records, to be more efficient and *paperless*. In addition to supplies for medical services, the team also needs materials to provide health education to elderly patients. For example, *leaflets*, *posters*, or short videos about elderly NCDs, how to prevent, and how to manage the disease. These educational materials should be attractive and easy for the elderly to understand.

According to one of the efforts that can improve quality is by optimizing *materials*. This aims to organize the process and help the process run smoothly (Suranto et al., 2022).

d. Method

Methods are procedures, protocols, and health service standards used, including guidelines for diagnosis, treatment, care, and system management (Fardiansyah et al., 2022). Method in the Tangguh Doctor Team is available and takes the form of a work guide called Standard Operating Procedures (SOP). The Tangguh Doctor Team has clear SOPs, ranging from the Mobile Health Service SOP to the Patient Referral SOP. These SOPs are like manuals that contain detailed steps on how the Tangguh Doctors team should work. SOPs are important so that all team members, in any working area, provide services in the same good way. The Ministry of Health also strongly encourages the use of SOPs in all health facilities (Ministry of Health of the Republic of Indonesia, 2015).

However, the availability of SOPs is not enough. We need to look deeper to see that the world of health is constantly evolving. SOPs must also be continuously updated to remain relevant and in accordance with the development of science and needs in the field. SOPs need to be evaluated regularly, corrected if there are deficiencies, and updated if there are changes in guidelines or new procedures. The process of updating SOPs should also involve team members who work directly in the field.

e. Machine

Machines are medical and electromedical equipment used in the diagnosis, treatment, and care of patients, such as diagnostic tools, surgical tools, therapeutic tools, and others (Fardiansyah et al., 2022).

One of the machines used by the Tangguh Doctor team is a means of transportation in the form of a car unit. However, there are several other important pieces of equipment that are not yet available, namely laptops for recording and reporting, and an integrated referral system.

The Integrated Referral System does not yet exist, so it needs to be developed immediately. Without this system, the process of referring patients from the mobile health center to Hamba Hospital can be slow and uncoordinated. We don't know how the patient's condition is, whether they go to the

Puskesmas or not, whether they have received a referral letter, and whether they have gone to RSUD Hamba. A good referral system can speed up the referral process, ensure patient information transfers smoothly between health facilities, and facilitate monitoring of the Tangguh Doctor Team's prospective patients by the Health Office and RSUD Hamba.

f. Market

Market is the target or target of health services, namely people or groups who need health services, both prevention, treatment, and rehabilitation efforts (Fardiansyah et al., 2022).

The results showed that most of the patients served by Dokter Tangguh are patients with NCDs, such as hypertension (high blood pressure), diabetes (diabetes), muscle and joint pain, stroke, and various other types of NCDs.

To make it easier to find the *market* for referral patients targeting elderly NCD patients, a geographic information system is needed, so that the Tangguh Doctors team can easily find which areas have a high prevalence of NCDs, and then can easily find patient addresses.

GIS represents a significant breakthrough in the understanding and management of location-based information. Its ability to unify, analyze and display geographic data has expanded our understanding of the world. In the age of information technology, GIS plays a vital role in the management and visualization of location data. As a system designed to collect, store, process, analyze, and visualize georeferenced data-information related to a specific position on the earth's surface-GIS offers an invaluable tool (Erkamim, 2023).

2. Process of Receiving Patient Referrals for Elderly NCD Patients in the Resilient Doctor Program at RSUD Haji Abdoel Madjid Batoe

Process is an activity that converts an input into an expected result of the system (Fardiansyah et al., 2022).

The process of receiving referrals for patients with NCDs for the elderly in the Tangguh Doctor Program at RSUD Haji Abdoel

Madjid Batoe is in accordance with the Minister of Health Regulation No. 16 of 2024, as described below:

- a. Doctor Determines Need to Refer: The Resilient Doctor determines the diagnosis and decides whether the patient needs to be referred to the Puskesmas (Batang Hari District Head Regulation No. 41 of 2022). Completing administrative data and patient medical data (Permenkes No. 16 of 2024).
- b. Transport Team to Health Center: The Tangguh Doctor team transports the patient to the health center with their own car (Perbup Batang Hari No. 41 of 2022). Ensure that patients who will be referred are in stable condition, ready to be referred, and use the appropriate means of transportation as needed (Permenkes No. 16 of 2024).
- c. Puskesmas Pick-Up If Transportation Emergency: If the patient's condition does not allow transport by the Tangguh Doctor Team car, the Team contacts the Puskesmas to request pick-up assistance (Perbup Batang Hari No. 41 of 2022). Communicate with the Referral Recipient Health Care Facility (Permenkes No. 16 of 2024).
- d. Ensure the Patient is Treated: The Tangguh Doctor Team ensures that the referred patient receives the required medical treatment at the Puskesmas (Perbup Batang Hari No. 41 of 2022). For emergency cases, patients can be directly referred to RSUD Haji Abdoel Madjid Batoe. Guarantee and ensure the patient's medical needs during the referral process (Permenkes No. 16 of 2024).

The referral system is a vital component in Indonesia's tiered health care system. Effective and efficient referrals ensure patients receive appropriate care according to the level of need and complexity of their health problems. National referral system guidelines have been established by the Ministry of Health to regulate the flow of referrals between health care facilities (Ministry of Health, 2024). Referrals from Puskesmas (or mobile Puskesmas such as Dokter Tangguh) to hospitals are common in our health system.

A smooth referral system is important as is an efficient queuing system. If referrals are

slow or there are many processes to go through, patients can wait a long time, treatment is delayed, and patients become dissatisfied. A good referral system should minimize waiting time. In primary health care, the Respite Doctor acts as a "gatekeeper". Resilient doctors must carefully screen which cases need to be referred to the hospital, so that the hospital is not overcrowded and can focus on treating more serious cases.

3. *Output of Patient Referral Acceptance for Elderly NCD Patients in the Tangguh Doctor Program at RSUD Haji Abdoel Madjid Batoe*

Is the result obtained from a process. Health service output: quality and affordable services so that people are healed and healthy (Fardiansyah et al., 2022).

The results showed several *output* indicators of the Dokter Tangguh referral program: percentage of targeted referrals (low), waiting time for referrals (low), patient satisfaction level (high), referral coverage in remote areas (limited), referral process time (long), referral operational costs (inefficient), and resource use (inefficient).

This suggests that there should be an effort to improve, but before providing recommendations, *brainstorming* on the effectiveness and efficiency of the respite doctor program was first conducted. According to (Arifianto & Briliana, 2021) *brainstorming* is defined as a technique carried out in groups that is carried out to find solutions to a problem through the delivery of ideas from each person.

4. *Problems in the System and its Impact on the Acceptance of Patient Referrals for Elderly NCD Patients in the Resilient Doctor Program to RSUD Haji Abdoel Madjid Batoe*

Impact is the result produced by the output of a system (Fardiansyah et al., 2022).

The referral system that requires Dokter Tangguh patients to always go through the Puskesmas first has many negative impacts. This system not only makes the program less effective, but is also costly, inefficient, makes

patients dissatisfied, and limits the reach of the program, especially in remote areas.

To overcome this problem, efforts must be made to identify the causes of the problem, so that appropriate resolution recommendations can be formulated. According to Arifianto & Briliana (2021), the commonly used problem classification, namely 6M, includes: *machines* and *equipment*; *materials*; *manpower*; *measurement*; *methods*; and *mother nature/environment*. Other than the above six factors can also be used if needed. Furthermore, to identify the root of the problem, *brainstorming* techniques can be used.

5. Causes of Problems in the Referral Acceptance System for Patients with Elderly NCDs in the Tangguh Doctor Program to RSUD Haji Abdoel Madjid Batoe

A referral system is a service delivery system that carries out reciprocal delegation of authority or responsibility, for a case of illness or health problem, vertically in the sense of from the smallest or less capable unit to a more capable unit or horizontally or horizontally in the sense between units of equal ability (Syamsul Arifin et al., 2022).

A tiered referral system with Puskesmas as the *gatekeeper* is common in Indonesia. However, in innovative programs such as Dokter Tangguh, which aims to be proactive and reach hard-to-reach communities, a rigid referral system becomes a barrier. Why is this tiered referral system problematic?

- a. *Method*: Patients have to go to the health center first in order to get a referral letter to the RSUD. So the patient has to pay for transportation to go to the Puskesmas first.
- b. *Machine*: This is because the team does not have adequate Laptop/Tablet facilities to access the system, there is no budget to procure a Laptop/Tablet (Machine). The team also does not have access to the Pcare BPJS Puskesmas and SISRUTE systems.

The referral system that requires going to the Puskesmas first makes the program inefficient. An inefficient referral system is a form of waste that must be eliminated. This is in line with *lean* theory, according to Hartini

(2022) waste affects the environmental impact, when an integrated system is able to reduce waste, this effort can reduce the impact caused. Departing from this, a discussion of recommendations for solving the problem will be explained in the next sub chapter.

6. Recommendations for the Acceptance System of Patient Referrals for Elderly NCD Patients in the Tangguh Doctor Program to RSUD Haji Abdoel Madjid Batoe

Related to these obstacles, the Health Office will collaborate with the planning field and vendors to find solutions related to eRM, Sisrute, and integration with Pcare BPJS / H.F.I.S. An Integrated Referral System *prototype* will be made, where doctors in the Tangguh Doctor Team can access the referral application to refer patients without having to go to the Puskesmas. In order for the referral system to be detected by PCare BPJS, the doctors in the Tangguh Doctor Team must be included in the H.F.I.S Puskesmas. Then the application must also be *bridging* to the Puskesmas electronic medical record, so that patient data can be registered and stored in the system. To facilitate referral services, the *user interface* of the application must be made user-friendly.

The theory of information system design also emphasizes the importance of creating a system that meets the needs of users, organizations, and program objectives. According to Erwin & Judianto (2024), one of the main objectives of implementing an information system is to improve the operational efficiency of the organization. By automating business processes and providing quick access to relevant information, information systems help reduce the time and effort required for routine tasks such as referring patients who have been examined.

From the above, it can be concluded that the innovation of the Integrated Referral System will be implemented immediately, given the aspect of usefulness to overcome the problem of elderly NCDs whose prevalence tends to increase along with population growth. Almost all parties agree with the innovation, but the innovation must also be agreed upon by the BPJS, because if it is not

agreed upon and the system is implemented, it will potentially be canceled or cannot be claimed. If it cannot be claimed and the patient has been served, it will affect the hospital's income. However, if it can be claimed without the knowledge of BPJS, it will potentially be investigated, and have an impact on the relationship between the RSUD and BPJS. So it is necessary to approach the BPJS as the social security organizer so that the application development plan gets approval.

Conclusion

The referral system for Elderly Non-Communicable Disease patients in the Tangguh Doctor Program at RSUD Haji Abdoel Madjid Batoe is not effective and efficient. The main cause of the problem is that patients must go through the Puskesmas first before being referred to the RSUD, as well as the lack of adequate equipment (laptop/tablet) and access to the integrated health information system in the Tangguh Doctor Team. The impact of this problem includes potential patient reluctance to be referred, an increase in untargeted referrals, longer patient waiting times, increased costs and time incurred by patients, and waste of health resources due to repeated examinations. Recommendations for improvement include the creation of an integrated referral system (application) connected to electronic medical records and the BPJS Health system, as well as the provision of service information at the RSUD. In addition, doctors who are members of the Tangguh Doctor team need to be registered with H.F.I.S..

Recommendation

To improve the referral system for elderly patients in the Tangguh Doctor Program, it is recommended that the Head of Batang Hari Health Office immediately coordinate with BPJS Health to develop an integrated referral system that is more efficient and suits the needs of Tangguh Doctors. The Director of RSUD Haji Abdoel Madjid Batoe is expected to fully support this effort, including being open to changes in referral flow and integration of hospital information systems. The Dokter Tangguh team needs to collaborate with puskesmas by developing a digital referral

application that is linked to BPJS and RSUD systems, allowing direct referrals without having to go through puskesmas first. BPJS is also expected to support this innovation. Researchers are advised to conduct further research and evaluate the developed application. Future researchers can continue the research with more complete data and different evaluation methods.

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